TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1941

No. 720

MILCOR STEEL COMPANY, PETITIONER,

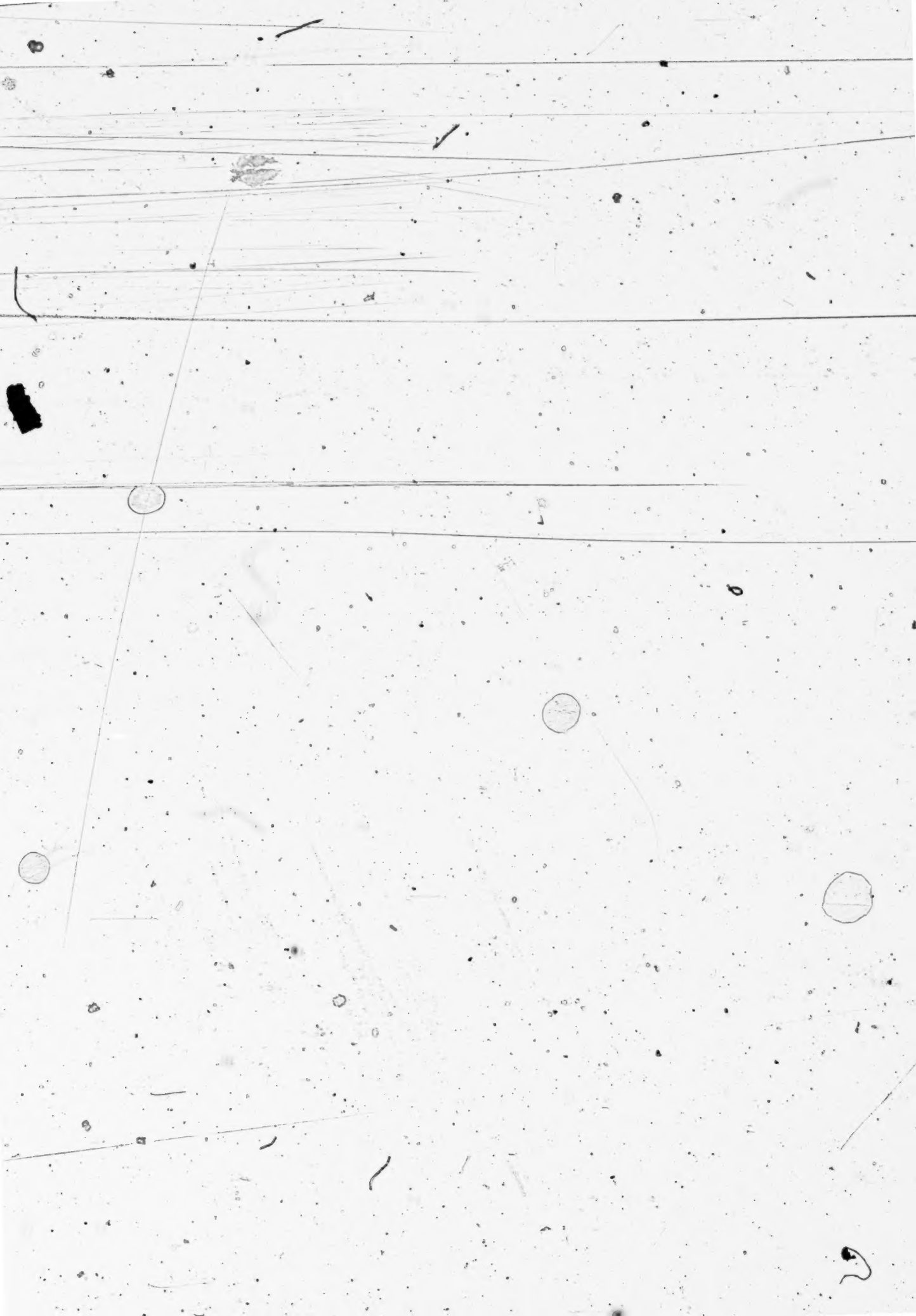
vs.

GEORGE A. FULLER COMPANY, NEFF LATHING COMPANY, INC., AND CONVER STEEL & WIRE COMPANY, INC.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

PETITION FOR CERTIORARI FILED OCTOBER 27, 1941.

CERTIORARI GRANTED DECEMBER 8, 1941.



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JUDD & DETWEILER (INC.), PRINTERS, WASHINGTON, D. C., DECEMBER 19, 1941.

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[fol. 1]

IN UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

MILCOR STEEL COMPANY, Plaintiff-Appellant,

v.

GEORGE A. FULLER COMPANY, NEFF LATHING COMPANY, INC., and Conver Steel & Wire Company, Inc., Defendants-Appellees

STATEMENT UNDER RULE 13

This action was commenced by the service of a summons and complaint upon the defendants on or about the 22d and 23d days of June, 1939.

Issue was joined by the service of an answer on or about August 18, 1939. The said answer was amended upon consent on or about June 20, 1940.

The names of the parties are as set forth above save that by stipulation and order entered on or about December 26th, 1939, the complaint was dismissed as to the original defendant New York City Housing Authority.

On or about September 28, 1940, the defendants moved for judgment on the pleadings and for summary judgment, and the said motion came on for hearing before Hon. John C. Knox on or about November 1st, 1940. In a memorandum opinion dated December 2, 1940, Judge Knox granted [fol. 2] the said motion and on December 18, 1940 judgment was entered dismissing the complaint, etc. Notice of appeal from the said judgment was filed on January 31, 1941.

Mock & Blum, Esquires, of 10 East 40th Street, New York, New York, appear as the attorneys of record for the plaintiff. George L. Wilkinson, Esquire, of The First National Bank Building, Chicago, Illinois, is of counsel for the plaintiff.

Messrs. Kenyon & Kenyon, Esquires, of 165 Broadway, New York, New York, appear as attorneys of record for all the defendants. Malcolm K. Buckley and Conrad Christel, Esquires, of Buffalo, New York, are of counsel for the defendants.

[fol. 3] IN DISTRICT COURT OF THE UNITED STATES, SOUTHERN DISTRICT OF NEW YORK

Civil Action. File No. 4-247

MILCOR STEEL COMPANY, Plaintiff,

v.

NEW YORK CITY HOUSING AUTHORITY, GEORGE A. FULLER COMPANY, Neff Lathing Company, Inc., and Conver Steel & Wire Company, Inc., Defendants

COMPLAINT

I—*Plaintiff*

Milcor Steel Company, a corporation organized and existing under the laws of the State of Delaware, and having its principal office and place of business at Milwaukee, Wisconsin.

II—*Defendants*

New York City Housing Authority is a corporation of the State of New York, having its principal office and place of business at 10 East 40th Street, Borough of Manhattan, City and State of New York, and at 346 Broadway, Borough of Manhattan, City and State of New York; it is a resident and inhabitant of the Southern District of New York, of which it has been a resident and inhabitant during the period of the infringement hereinafter complained of. George A. Fuller Company is a corporation of the State of New Jer-
[fol. 4] sey, having a regular and established place of business at 597 Madison Avenue, Borough of Manhattan, City and State of New York, where it has committed the acts of infringement hereinafter complained of. Neff Lathing Company Inc. is a corporation organized and existing under the laws of the State of New York and having its office and principal place of business at 503 Fifth Avenue, Borough of Manhattan, City and State of New York; it is a resident and inhabitant of the Southern District of New York, of which it has been a resident and inhabitant during the period of the infringement hereinafter complained of. Conver Steel & Wire Company, Inc. is a corporation of the State of New York and having its principal office and place of business at 621 East 132nd Street, Borough of Bronx, City

and State of New York; it is a resident and inhabitant of the Southern District of New York, of which it has been a resident and inhabitant during the period of the infringement hereinafter complained of. Said defendants have jointly and severally infringed upon Letters Patent of the United States No. 2,105,770, hereinafter referred to, both by direct infringement and also by contributory infringement.

III—*Jurisdiction*

The jurisdiction of this Court is based upon the patent laws of the United States of America.

The acts of infringement and contributory infringement herein complained of were and are now being committed in New York City, New York, and in Brooklyn, New York, and elsewhere within the United States.

IV—*Title to Patent*

Prior to October 15, 1936, Harry Holdsworth, being within the meaning of the statutes of the United States then in force, the original, first and sole inventor of a certain [fol. 5] wall construction, and being entitled to a patent thereon under the provisions of the said statutes, duly filed in the United States Patent Office on October 15, 1936, an application for Letters Patent, Serial No. 105,661, for said invention.

On January 18, 1938, said Harry Holdsworth, having assigned his entire right, title and interest in and to said invention and the application for United States Letters Patent covering the same, to Holdsworth Bros., Inc., a corporation of the State of New York, and all of the requirements of the then existing statutes of the United States under the rules of practice of the United States Patent Office having been complied with, Letters Patent of the United States No. 2,105,770 were duly granted to the said Holdsworth Bros., Inc. on said application, Serial No. 105,661.

The entire right, title and interest in and to the said United States Letters Patent No. 2,105,770 was on April 7, 1938 duly assigned by an instrument in writing recorded in the United States Patent Office, Liber S 174, page 456, on April 25, 1938.

V—*Infringement*

The defendants, and each of them, prior to the filing of this Complaint and subsequent to the date on which said

Letters Patent was granted, severally and jointly have infringed and contributed to the infringement of said Letters Patent, and each of said defendants threatens to continue to so infringe by making or causing to be made, selling or causing to be sold, and using or causing to be used, within this District and elsewhere within the United States, wall constructions made in accordance with and embodying the invention disclosed and claimed in plaintiff's said Letters Patent No. 2,105,770, willfully and without the consent of plaintiff.

[fol. 6] VI—*Notice*

Plaintiff, and its predecessor in ownership of said Letters Patent, have complied with the statute as to notice thereof, and plaintiff has notified in writing each of the said defendants of its infringement of said Letters Patent, but said defendants, and each of them, in spite of said notice, are continuing and threaten to continue such infringement.

VII—*Damage*

Defendants, and each of them, have severally and jointly derived unlawful gains and profits from their infringement of said Letters Patent, which plaintiff otherwise would have received but for such infringement, and plaintiff has thereby been greatly damaged, such damages being at least in the sum of $50,000.00.

Wherefore, plaintiff demands a judgment against the defendants, and each of them, jointly and severally, for the amount of damages in the sum of at least $50,000.00, which plaintiff has sustained by reason of their joint and several infringement of said Letters Patent; for its costs of this suit, and for such other and further relief as may be meet and just.

Milcor Steel Company, by Mock & Blum, by Asher Blum, Its Attorneys. Geo. L. Wilkinson, of Counsel for Plaintiff.

[fol. 7] New York City Housing Authority, George A. Fuller Company, Neff Lathing Company Inc., and Conver Steel & Wire Company, Inc.

GENTLEMEN:

Please take notice that pursuant to No. 38b of the Rules of Civil Procedure, the plaintiff demands that each and

every issue stated in the complaint herein shall be tried by jury.

Mock & Blum, by Asher Blum, Attorneys for Plaintiff.

In District Court of the United States for the Southern District of New York

[Title omitted]

Plaintiff's Bill of Particulars

The plaintiff above mentioned answers the demand of the defendants for a bill of particulars, as follows:

1. Plaintiff charges that claims 6 and 7 of U. S. Patent No. 2,105,770 have been infringed.

[fol. 8] 2. Plaintiff will rely upon claims 6 and 7 of U. S. Patent No. 2,105,770 at the trial of the above named action.

3. Plaintiff does not allege that the defendants have jointly infringed the aforesaid claims by making, using or selling wall constructions which are located within the Southern District of New York.

4. Plaintiff alleges that the wall constructions located within the United States and specified in paragraph "V" of the complaint are embodied in the Red Hook housing project located in the Borough of Brooklyn, City and State of New York.

Mock & Blum, Attorneys for Plaintiff, Office & P. O. Address, 10 East 40th Street, Borough of Manhattan, City of New York.

Dated, New York, N. Y., August 8, 1939.

[fol. 9] In District Court of the United States for the Southern District of New York

[Title omitted]

Answer

I

Defendants have no knowledge or information sufficient to form a belief as to the truth or falsity of the allegations

contained in paragraph numbered I of the Complaint herein, and therefore deny the same and leave the plaintiff to its proof.

II

Defendants deny the allegations contained in paragraph numbered II of the Complaint except that it is admitted that New York City Housing Authority, Neff Lathing Company, Inc., and Conver Steel & Wire Company, Inc. are corporations of New York, residents and inhabitants of the Southern District of New York and have offices at the places specified in the Complaint and that George H. Fuller Com- [fol. 10] pany is a corporation of New Jersey with a place of business at 597 Madison Avenue, New York.

III

Answering paragraph numbered III of the Complaint herein, it is admitted that this is an action for alleged patent infringement based upon the patent laws of the United States of America; but defendants deny each and every other allegation of said paragraph III.

IV

Answering paragraph numbered IV of the Complaint herein, it is admitted that on October 15, 1936 Harry Holdsworth filed an application for patent under Serial Number 105,661 and that on said application Letters Patent of the United States of America were granted on January 18, 1938 to Holdsworth Bros. Inc., and that an instrument in writing dated April 7, 1938 and purporting to assign the entire right, title and interest in and to said United States Letters Patent No. 2,105,770 was recorded in the United States Patent Office, Liber S 174, page 456, on April 25, 1938; but deny each and every other allegation of said paragraph IV.

V

Defendants deny each and every allegation of paragraph numbered V of the Complaint herein.

VI

Defendants admit that notice of said patent was served upon each of them but deny each and every other allegation of paragraph numbered VI.

[fol. 11] VII

Defendants deny each and every allegation of paragraph numbered VII of the Complaint herein.

VIII

Intending to make full and complete answer to the Complaint, defendants deny each and every allegation of the Complaint which they have not herein specifically admitted.

1

As a first and separate defense, defendants each allege:

That they have at no time or place made, used or sold the alleged improvements claimed in any valid claim of Letters Patent No. 2,105,770, the patent in suit; that they have never made, used or sold any wall construction in infringement of any valid rights of plaintiff under said Letters Patent, or damaged plaintiff in respect of said Letters Patent, or profited by reason of anything contained in or covered in said Letters Patent.

2

As a second and separate defense, defendants each allege:

That the alleged invention or improvements described and claimed in the patent in suit, and particularly in claims 6 and 7 thereof, does not amount to invention within the meaning of the patent law, but in view of what was known in the art to which this patent relates at the time of said invention, the construction described and claimed in said patent, and particularly in claims 6 and 7 thereof, involves only the exercise of the ordinary skill of a person familiar with the art to which said patent relates, and therefore, defendants aver that said pretended invention is wholly [fol. 12] lacking in patentable novelty and that said patent is therefore void.

3

As a third and separate defense, defendants each allege:

That Letters Patent No. 2,105,770 is invalid, particularly as to claims 6 and 7 thereof, for the following reasons:

(a) That every material and substantial part thereof therein claimed as new was invention by others prior to the

alleged invention thereof by Harry Holdsworth and disclosed in the following Letters Patent of the United States and in the applications for said Letters Patent:

United States Letters Patent

Patent No.	*Inventor*	*Date*
913,152	Orr	Feb. 23, 1909
1,801,668	Henderson	April 21, 1931
1,998,688	Robinson	April 23, 1935
2,056,328	Price	Oct. 6, 1936

(b) That the thing patented in said Letters Patent had been patented and described prior to the alleged invention or discovery thereof in Letters Patent of the United States and foreign countries and also printed publications not now known to these defendants but which, when ascertained, defendants pray leave to add to this answer.

(c) That this alleged inventor was not the first, true, original or sole inventor or discoverer of the invention purported to be conveyed by said Letters Patent, or of any material or substantial part thereof, and that the same or material or substantial parts thereof had been known or in public use or on sale in this country prior to the alleged invention thereof and more than two years prior to the said application therefor, and that the persons who had knowledge of and made use of the alleged invention of said patent or [fol. 13] of material or substantial parts thereof prior to said alleged invention thereof, and for more than two years prior to said application for Letters Patent therefor, are those persons named as patentees and assignees listed in the preceding paragraph (a), which persons reside in and knew of, or used the same, at the respective places stated as their addresses in said patents, and that, in addition, other persons had knowledge of and made use of the same, to wit: L. B. Moreton, Neff Lathing Company, 503 Fifth Avenue, New York, N. Y.

4

As a fourth and separate defense, defendants each allege:

That the invention claimed in Letters Patent No. 2,105,770 of Harry Holdsworth, and particularly that claimed in claims 6 and 7 thereof, is substantially identical with an

invention claimed in a prior patent of said Harry Holdsworth, to wit: Letters Patent No. 1,982,104 granted November 27, 1934, and the said Letters Patent No. 2,105,770 is invalid for double patenting because thereof and also is invalid by reason of attempted undue extension of the monopoly purported to be granted by said Letters Patent No. 1,982,104.

5

As a fifth and separate defense, defendants each allege:

That plaintiff has failed to state a claim upon which relief can be granted.

6

As a sixth and separate defense, defendants each allege:

That the portions of paragraph III of the Complaint herein as follows: "New York City, New York, and" and [fol. 14] ", and elsewhere within the United States", should be stricken; and in support thereof show the Court Items numbered 3 and 4 of plaintiff's particulars dated New York, N. Y., August 8, 1939.

7

As a seventh and separate defense, defendants each allege:

That paragraph V of the Complaint herein should be stricken as it alleges infringement "within this district and elsewhere within the United States" while the particulars of plaintiff in this action dated August 8, 1939 allege, in Items numbered 3 and 4, infringement only in the Red Hook housing project located in the Borough of Brooklyn, City and State of New York.

Wherefore, defendants pray that the Complaint be dismissed and that costs be taxed against plaintiff.

New York City Housing Authority, George A. Fuller Company, Neff Lathing Company, Inc., Conver Steel & Wire Company, Inc., by Malcolm K. Buckley, Attorney for Defendants, Office and Post Office Address, 1608-1615 Liberty Bank Bldg., Buffalo, New York.

Kenyon & Kenyon, Solicitors for Defendants, Office and Post Office Address, 165 Broadway, New York, N. Y.

August 18, 1939.

2—720

[fol. 15] IN DISTRICT COURT OF THE UNITED STATES, FOR THE SOUTHERN DISTRICT OF NEW YORK

[Title omitted]

NOTICE OF DISCLAIMER

Messrs. Kenyon & Kenyon, Solicitors for Defendants, 165 Broadway, New York, New York.

GENTLEMEN:

You are hereby advised that the plaintiff, Milcor Steel Company, on or about November 2, 1939, made and filed in the United States Patent Office a Disclaimer as to Claims 6 and 7 of the Holdsworth Patent No. 2,105,770 in suit, which Disclaimer was duly recorded on November 2, 1939, in the United States Patent Office, Liber 4, page 590. We attach hereto a copy of the said Disclaimer.

Mock & Blum, Attorneys for Plaintiff, 10 East 40th Street, New York, New York.

Geo. L. Wilkinson, Of Counsel for Plaintiff.

[fol. 16] IN THE UNITED STATES PATENT OFFICE

In the Matter of UNITED STATES LETTERS PATENT No. 2,105,770, Granted January 18, 1938

DISCLAIMER

Hon. Commissioner of Patents:

Your petitioner, Milcor Steel Company, of Milwaukee, Wisconsin, a corporation duly organized and existing under the laws of the State of Delaware, represents that in the matter of a certain Improvement in Wall Construction, for which Letters Patent of the United States No. 2,105,770 were granted on January 18, 1938 to Holdsworth Brothers, Inc., of New York, New York, a corporation of the State of New York, and of which said Letters Patent petitioner is the assignee of the entire right, title and interest, the assignment having been recorded April 25, 1938 in Liber S 174, page 456; that it has reason to believe that through inadvertence,

accident or mistake, without fraudulent or deceptive intention, Claims 6 and 7 are too broad, including that of which the applicant for said Letters Patent was not the original and first inventor.

Your petitioner therefore hereby makes disclaimer as to Claims 6 and 7 as follows:

(a) As to Claim 6, except a wall construction for a room in which the ceiling member comprises a vertical depending perforated flange, one side of which is overlapped by metal lathing.

[fol. 17] (b) As to Claim 7, except a wall construction for a room in which the base member is composed of a longitudinal strip having recesses to receive the lower ends of the webs of channel wall supports, the flanges of the channel wall supports overlapping the base member adjacent the recesses.

Signed at Milwaukee, County of Milwaukee, State of Wisconsin, this 30th day of October, 1939.

Milcor Steel Company, By E. A. Tanner, President.

Witnesses: W. B. Turner, A. P. Kreuger.

[fol. 18] In District Court of the United States, for the Southern District of New York

[Title omitted]

Amendment to Defendants' Answer

Now comes the defendants, by their attorneys, and amend their answer to the complaint herein in the following particular:

To paragraph *a* of defendants' third and separate defense appearing at page 4 of the answer, add the following Letters Patents:

Patent No.	*Inventor*	*Date*
528,931	Eils	Nov. 13, 1894
530,940	Golding	Dec. 18, 1894
552,539	McCartney	Jan. 7, 1896
603,402	Kearns	May 3, 1898
630,141	Venezia	Aug. 1, 1899

Patent No.	*Inventor*	*Date*
749,862	Hegbom	Jan. 19, 1904
840,596	Turnbull	Jan. 8, 1907
913,152	Orr	Feb. 23, 1909
[fol. 19]		
943,696	Mooney et al.	Dec. 21, 1909
975,426	Hill	Nov. 15, 1910
1,102,883	Dawson	July 7, 1914
1,134,736	Gleason	Apr. 6, 1915
1,167,899	Henderson	Jan. 11, 1916
1,191,871	Carrick	July 18, 1916
1,327,292	Raymond	Jan. 6, 1920
1,348,009	Jester	July 27, 1920
1,828,953	Wissheier	Oct. 27, 1931
1,924,986	Frazier	Aug. 29, 1933
1,981,239	Manske	Nov. 20, 1934
1,981,240	McNeil	Nov. 20, 1934
1,982,104	Holdsworth	Nov. 27, 1934
1,985,150	Collins	Dec. 18, 1934
1,993,792	Manske et al.	Mar. 12, 1935
1,998,688	Robinson et al.	Apr. 23, 1935
2,000,243	Manske	May 7, 1935
2,056,328	Price	Oct. 6, 1936
2,058,386	Parsons	Oct. 20, 1936
2,087,867	Balduf	July 20, 1937
2,100,209	Bleuel	Nov. 23, 1937
2,105,771	Holdsworth	Jan. 18, 1938
2,150,061	Holdsworth	Mar. 7, 1939

George A. Fuller Company, Neff Lathing Company, Inc., Conver Steel & Wire Company, Inc., By Malcolm K. Buckley, Attorney.

Kenyon & Kenyon, Solicitors for Defendants.

Dated: June 14, 1940.

[fol. 20] In District Court of the United States, for the Southern District of New York

[Title omitted]

Notice of Motion for Judgment on the Pleadings

Sirs:

Please take notice that at 10:30 in the forenoon on Tuesday, the 8th day of October, 1940, or as soon thereafter as

counsel can be heard, in Room 506 of the United States Court House, Foley Square, Borough of Manhattan, City and State of New York, we shall present the annexed Motion dated September 28, 1940, together with the annexed Affidavit of Thomas E. Robertson, verified the 21st day of September, 1940.

Upon the argument of the said motion we shall refer, in addition, to the pleadings herein, to Plaintiff's Bill of Particulars filed herein August 9, 1939, to Plaintiff's Notice of Disclaimer filed herein November 30, 1939, and to a copy of the patent in suit and of each of the prior patents identified [fol. 21] in the annexed affidavit of Thomas E. Robertson, verified the 21st day of September, 1940.

Yours, etc., Kenyon & Kenyon, by W. Houston Kenyon, Jr. (a member of the firm), Attorneys for Defendants, 165 Broadway, New York, N. Y.

To: Mock & Blum, Esqs., Attorneys for Plaintiff, 10 East 40th Street, New York, N. Y.

Copy received this 28th day of September 1940.

Mock & Blum, Attorneys for Plaintiff.

[fol. 22] In District Court of the United States, for the Southern District of New York

[Title omitted]

Motion for Judgment on the Pleadings

Now come the defendants and move

a) under Rule 12(c) for judgment on the pleadings, as the same are supplemented by plaintiff's Bill of Particulars filed August 9, 1939 and plaintiff's Notice of Disclaimer filed November 30, 1939;

or, in the alternative,

b) under Rule 56 for summary judgment, upon the pleadings including plaintiff's Bill of Particulars filed August 9, 1939, upon plaintiff's Notice of Disclaimer filed November 30, 1939, and upon the annexed affidavit of Thomas E. Robertson verified September 19, 1940.

The grounds of the said motions are:

1. The pleadings in this action, all considered, fail to state a cause of action against the defendants.

2. The plaintiff, by its bill of particulars dated August 8, 1939, asserted reliance upon an allegation of infringement of claims 6 and 7 of the patent in suit and subsequently, by disclaimer dated October 30, 1939, which date is subsequent to the date of filing of the complaint in this [fol. 23] action, subsequent to the date of the defendants' answer, and subsequent to the date of filing the bill of particulars referred to above, did assert the invalidity of claims 6 and 7 and did disclaim the subject matter of claims 6 and 7.

3. The plaintiff, after issue joined, and after being apprised of the true state of the prior art by defendants' pleadings, did admit the invalidity of all of the claims in suit, to wit: claims 6 and 7 of the patent in suit, and did seek, by recourse to the disclaimer statute, to endow its patent with new claims of a scope not previously contemplated and not awarded to it with the dignity of an examination thereof by the Patent Office in view of the prior art as provided by the letter and spirit of the Patent Laws, R. S. 4891 (U. S. C. title 35, sec. 36).

4. Claims 6 and 7 as modified by disclaimer are invalid by reason of the procedure recited in paragraph 3 and because of the additions to the claims by disclaimer of an element or elements not recited in the original claims.

5. The claims as they are sought to be modified by disclaimer are still invalid over the prior art and the restrictions sought to be added to the original claims by disclaimer do not impart patentable novelty to claims 6 and 7.

6. That further procedure in this action would result in the trial of defendants for infringement solely of claims not in existence at the time of the alleged acts of infringement, of claims not in existence at the time of the filing of this action, of claims not in existence at the time issue was joined in this action, and of claims not examined by the examining corps of the Patent Office at any time.

7. The Patent Office records disclaimers as directed by R. S. 4917 (U. S. C. title 35, sec. 65) without discretion and

without the right to refuse any form of disclaimer which a patentee may desire to enter, and consequently, there is no presumption of validity of a claim modified by disclaimer.

[fol. 24] 8. In view of the preceding paragraph, the plaintiff fails to state a cause of action since it makes no showing on the record of its right to a patent monopoly of the scope of claims 6 and 7 as they are attempted to be made to read by the aforesaid disclaimer.

9. That plaintiff attempted improperly to do in the Patent Office by an unexaminable and unverified act under the disclaimer statute what Congress has provided should be done by reissue and with the dignity of an examination by the technical examiner of the Patent Office of an application for reissue filed with a sworn statement of the inadvertence, accident or mistake, as required by R. S. 4892 (U. S. C. title 35, sec. 64) and the Rules of the Patent Office thereunder, which caused the original Letters Patent to be incorrectly issued, and consequently the Letters Patent as they now stand are invalid.

10. Had plaintiff proceeded by Reissue as directed by the Patent Laws, R. S. 4916 (U. S. C. title 35, sec. 64), the defendant herein would possess intervening rights constituting a defense to any suit based upon claims secured by such Reissue. The plaintiff should not be permitted to do by indirection what it cannot do directly and therefore the defendants have intervening rights as to claims 6 and 7 as they are sought to be made to read by disclaimer.

11. The patent in suit and claims 6 and 7 thereof as they are sought to be made to read by disclaimer are void by reason of the failure of the alleged inventor to take oath that he verily believes himself to be the original and first inventor or discoverer of the subject matter of such claims and to the other averments positively required by R. S. 4892 (U. S. C. title 35, sec. 35).

12. The plaintiff by this action sought damages for infringement of original claims 6 and 7 of the patent in suit and alleged that said damages for the alleged infringement amounted to $50,000.00 and the plaintiff has since admitted [fol. 25] the invalidity of said original claims 6 and 7 wherefore the basis for suit has been admitted by plaintiff to be invalid and non-existent and the complaint should therefore

be dismissed. The claims now asserted to be infringed did not come into existence until after the alleged damage to the plaintiff is claimed to have occurred.

13. It would be inequitable to hold the defendants responsible and answerable to a charge of infringement of claims not in existence at the time of the alleged acts of infringement, nor at the time of the filing of the action for alleged infringement, nor at the time of the filing of an answer by the defendants, and therefore, the action should be dismissed on defendants' motion for lack of equity.

George A. Fuller Company, Neff Lathing Company, Inc., Conver Steel & Wire Company, Inc., by Kenyon & Kenyon, by W. Houston Kenyon, Jr. (a partner), Attorneys for Defendants.

Malcolm K. Buckley, Conrad Christel, Of Counsel.

Dated New York, N. Y., September 28, 1940.

The foregoing motion is believed to be well founded in fact and law and is interposed in good faith and not to delay or hinder the proper administration of justice in the above identified cause of action.

Malcolm K. Buckley, Of Counsel.

[fol. 26] In District Court of the United States, for the Southern District of New York

[Title omitted]

Affidavit in Support of Motion for Judgment

District of Columbia,
United States of America, ss.:

Thomas E. Robertson, being duly sworn, deposes and says:

That he is conversant with the Patent Laws of the United States and the decisions thereunder and that he is familiar with practice in and before the United States Patent Office; that for many years prior to 1921 he engaged in the practice of Patent Law before the United States Patent Office and the various federal courts; that from the

year 1921 to sometime during the year 1933 he was United States Commissioner of Patents; that from the year 1933 to about 1937 he engaged in the practice of Patent Law and since his retirement in 1937 he has served on various occasions as an expert in patent matters;

[fol. 27] That he is familiar with R. S. 4917 (U. S. C. title 35, sec. 65) providing for the entry of disclaimers in Letters Patent and that he is familiar with the practice in the United States Patent Office relative to such disclaimers.

That the function of the Commissioner of Patents in receiving disclaimers is purely ministerial and not discretionary; that disclaimers filed in the United States Patent Office are examined as to form only and by clerical divisions; that disclaimers are not referred to the technical examining corps of the Patent Office and that disclaimers are not refused entry for any reason other than for purely clerical defects; that in the absence of any such clerical defects such as an improper signature or the like, disclaimers are entered as a matter of course;

That deponent has examined Holdsworth Patent No. 2,105,770 and particularly original claims 6 and 7 thereof, this being the patent involved in the above identified action, and the claims enumerated being those elected by the plaintiff in this action; that he has further studied the disclaimer to such claims dated November 2, 1939 and filed by the Milcor Steel Company, plaintiff herein.

Deponent states that as a result of such examination he concludes that the attempted disclaimer clearly adds additional elements not recited in the original claims. Original claim 6 follows:

"6. A wall construction for a room having a floor and a ceiling, said wall construction including a base member and a ceiling member, said wall construction also including upstanding wall-supports whose height is less than the maximum vertical distance between said base member and said ceiling member, said upstanding wall supports being located between said base member and said ceiling member, said wall supports being vertically movable relative to said base member and to said ceiling member when said wall [fol. 28] supports are assembled with said base member and said ceiling member, and means operative to prevent any substantial tilting movement of said wall supports from their predetermined upstanding position."

The following is the attempted disclaimer to claim 6:

"(a) As to claim 6, except a wall construction for a room in which the ceiling member comprises a vertical depending perforated flange, one side of which is overlapped by metal lathing."

The elements of original claim 6 may be stated to be:

1. A base member,

2. A ceiling member,

3. Upstanding wall supports, and

4. Means operable to prevent substantial tilting movement of the supports.

Claim 6 as modified by the disclaimer contains the four elements of original claim 6 recited above and in addition the following two elements:

5. A vertical depending perforated flange (added to element 2), and

6. Metal lathing overlapping element 5.

Elements 5 and 6 are therefore believed clearly to be added to the o-ginal elements of claim 6 by the disclaimer.

Original claim 7 reads as follows:

"7. A wall construction for a room having a floor and a ceiling, said wall construction including a base member and a ceiling member, said wall construction also including up- [fol. 29] standing wall-supports whose height is less than the maximum vertical distance between said base member and said ceiling member, said upstanding wall supports being located between said base member and said ceiling member, said wall supports being vertically movable relative to said base member and to said ceiling member when said wall supports are assembled with said base member and said ceiling member, said base member and said ceiling member being shaped to provide means which are operative to prevent any substantial tilting of said wall supports from their predetermined upstanding position."

The following is the attempted disclaimer to claim 7:

"(b) As to claim 7, except a wall construction for a room in which the base member is composed of a longitudinal strip

having recesses to receive the lower ends of the webs of channel wall supports, the flanges of the channel wall supports overlapping the base member adjacent the recesses."

The elements of original claim 7 include:

1. A base member,

2. A ceiling member,

3. Upstanding wall supports, and

4. Means (shaped in the base member and ceiling member) to prevent * * * tilting.

Modified claim 7 contains the four elements of original claim 7 and additional element, to wit:

5. Flanges on the wall support for overlapping the base member adjacent the recess.

Element 5 is therefore believed clearly to be added to the original elements of claim 7 by the disclaimer.

[fol. 30] Deponent is familiar with the opinion of the Supreme Court of the United States in Altoona Publix Theatres v. American Tri-Ergon Corp., 55 S. Ct. 455; that the Supreme Court in that opinion states that a disclaimer which adds a new element to a claim is invalid; and that the nature of the disclaimer under consideration in that case was very much the same as the disclaimer attempted by the plaintiff herein in connection with claims 6 and 7;

That the attached paper is a copy of the pertinent excerpts from the Supreme Court's opinion as it appears in the Supreme Court Reporter.

Original claim 6, by the filing of the disclaimer, has been "withdrawn from the protection of the patent laws" and the public is therefore "entitled to manufacture and use the device as freely as though it had been abandoned." (Quotation from opinion below.) This claim is further believed to be invalid by reason of anticipation by the patent to Orr, No. 913,152 dated February 23, 1909. Because of the invalidity of original claim 6 the claim as modified by the disclaimer is believed not to display patentable novelty since it distinguishes only by addition of the depending, perforated, vertical flange and metal lath overlapping such

flange. That this is an old and well known expedient in the art is shown in any of the following patents:

Golding	530,940	December 18, 1894
Balduf	2,087,867	July 20, 1937
Carrick	1,191,871	July 18, 1916
Dawson	1,102,883	July 7, 1914
Kearns	603,402	May 3, 1898
Hill	975,426	November 15, 1910
McCartney	552,539	January 7, 1896

I therefore conclude that claim 6 as modified by the disclaimer is invalid for lack of invention in any event.

Original claim 7, by the filing of the disclaimer, has been "withdrawn from the protection of the patent laws" and [fol. 31] the public is therefore "entitled to manufacture and use the device as freely as though it had been abandoned." (Quotation from opinion below.) Claim 7 is further believed to be clearly anticipated by the patent to Orr No. 913,152.

The disclaimer to claim 7 adds to that claim only the specification that the base member has recesses to receive the lower ends of the channels with the flanges of the channels overlapping the base member adjacent the recesses. That this is an old and well known expedient is clearly evident from a consideration of any of the following prior art patents:

Parsons, 2,058,386, October 20, 1936;
Hegbom, 749,862, January 19, 1904;
Turnbull, 840,596, January 8, 1907;
Henderson, 1,167,899, January 11, 1916;
Frazier, 1,924,986, August 29, 1933;
Manske, 1,981,239, November 20, 1934;
McNeil, 1,981,240, November 20, 1934;
Collins, 1,985,150, December 18, 1934;
Bleuel, 2,100,209, November 23, 1937.

Further deponent sayeth not.

Thomas E. Robertson.

Sworn to and subscribed before me this 21 day of September, 1940. Aileen M. Burns, Notary Public. My Commission Expires Mar. 14, 1943. (Seal.)

[fol. 32] EXCERPTS ATTACHED TO FOREGOING AFFIDAVIT

Excerpts from Opinion of Supreme Court in

ALTOONA PUBLIX THEATRES, INC.,

v.

AMERICAN TRI-ERGON CORPORATION

55 Sup. Ct. Rep., 455

"* * * The Court below made no reference to the contention of petitioner, urged here and below, that the patent was rendered invalid by the disclaimer filed shortly before the trial of the present suit. The patent as issued contained the following claims:

* * * * * * *

"13. An apparatus for reproducing speech, music or the like sounds from vibrations recorded on a film, by the use of a line of light varied in accordance with the sound, comprising a photo-electric cell, means for imparting to the film a rapid and uniform motion longitudinally of the film past said cell, a source of light projection for providing said light, and an objective lens in the path of said light and spaced from the film for directing said light as a converging narrow line impinging on the film at a point in the region of the focal point of said lens, said light passing through the film and on to said cell, the space between said lens and the film being free of obstruction to said light.

In 1933 respondents, by appropriate procedure, disclaimed:

* * * * * * *

"c. The combination as set forth in claim 13, except wherein a flywheel is operatively connected with the film through means which imparts uniformity of motion of the flywheel to the film.

[fol. 33] While the effect of the disclaimer, if valid, was in one sense to narrow the claims, so as to cover the combinations originally appearing in claims 9 and 13 only when used in conjunction with a flywheel, it also operated to add the flywheel as a new element to each of the combina-

tions described in the claims. The disclaimer is authorized by Rev. St. 4917 (35 U. S. C. A. 65), which provides that, when 'through inadvertence, accident, or mistake • • • a patentee has claimed more than that of which he was the • • • inventor • • • his patent shall be valid for all that part which is truly and justly his own,' provided that he or his assigns 'make disclaimer of such parts of the thing patented as he shall not choose to claim • • • stating therein the extent of his interest in such patent.' While this statute affords a wide scope for relinquishment by the patentee of part of the patent mistakenly claimed, where the effect is to restrict or curtail the monopoly of the patent, it does not permit the addition of a new element to the combination previously claimed, whereby the patent originally for one combination is transformed into a new and different one for the new combination.

If a change such as the present could validly be made, it could only be under the provisions of the reissue statute, Rev. St. 4916, amended by Act May 24, 1928 (35 U. S. C. A. 64), which authorizes the alteration of the original invention in a reissued patent, upon surrender of the old patent, for its unexpired term. Upon the reissue, 'the specifications and claims in every such case shall be subject to revision and restriction in the same manner as original applications are.' A patent amended by disclaimer thus speaks from the date of the original patent, while the reissued patent, with respect to the amended claim, speaks from the date of reissue. If respondent could thus, by disclaimer, add the flywheel to the arcuate flexing claim and to the optical claim, he would in effect secure a new patent operating retroactively in a manner not permitted by the reissue statute and with-
[fol. 34] out subjecting the new claims to revision or restriction by the customary Patent Office procedure required in the case of an original or reissued patent. Such transformation of a patent is plainly not within the scope of the disclaimer statute, and the attempted disclaimer as applied to claims 9 and 13 is void. Hailes v. Albany Stove Co., 123 U. S. 582, 587, 8 S. Ct. 262, 31 L. Ed. 284. See Union Metallic Cartridge Co. v. United States Cartridge Co., 112 U. S. 624, 642, 5 S. Ct. 475, 28 L. Ed. 828; Collins Co. v. Coes, 130 U. S. 56, 68, 9 S. Ct. 514, 32 L. Ed. 858. Compare Grant v. Walker, 148 U. S. 547, 553, 13 S. Ct. 699, 37 L. Ed. 552.

• • • • • • •

With the invalid disclaimer must fall the original claims as they stood before the disclaimer. The disclaimer is a representation, as open as the patent itself, on which the public is entitled to rely, that the original claim is one which the patentee does not, in the language of the statute, 'choose to claim or to hold by virtue of the patent.' Upon the filing of the disclaimers, the original claims were withdrawn from the protection of the patent laws, and the public was entitled to manufacture and use the device originally claimed as freely as though it had been abandoned. To permit the abandoned claim to be revived, with the presumption of validity, because the patentee had made an improper use of the disclaimer, would be an inadmissible abuse of the patent law to the detriment of the public.

While the precise effect of an invalid disclaimer upon the original claim seems not to have been judicially determined, analogous principles of the patent law are so well recognized as to leave no doubt what our decision should be. It has long been settled that a claim abandoned or rejected in the Patent Office with the acquiescence of the applicant cannot be revived in a reissued patent. Yale Lock Mfg. Co. v. Berkshire Nat. Bank, 135 U. S. 342, 379, 10 S. Ct. 884, 34 L. Ed. 168; Dobson v. Lees, 137 U. S. 258, 263-265, 11 S. Ct. 71, 34 L. Ed. 652. * * *"

[fol. 35] IN DISTRICT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF NEW YORK

[Title omitted]

AFFIDAVIT IN OPPOSITION TO MOTION FOR JUDGMENT

STATE OF ILLINOIS,
County of Cook, ss:

William B. Turner, being duly sworn, deposes and says:

That he is and has been for more than six years connected with the plaintiff, Milcor Steel Company, as manager of its fireproofing and specialty division;

That he is thoroughly familiar with the furring and partition wall structures which the plaintiff has manufactured and sold during the last two and one-half years;

That he has been familiar with furring and partition walls for buildings continuously since 1909, and is thoroughly familiar with the construction of such structures which were in general use prior to the exploitation by plaintiff of the furring and partition wall structure disclosed and described in Claims 6 and 7 of Holdsworth Patent No. 2,105,770;

That prior to the exploitation by plaintiff of the said Holdsworth furring and partition wall structure, such struc-
[fol. 36] tures had generally been of two general types, (1) for use in fireproof buildings in which holes were drilled in the cement or tile floor and in the cement or tile ceiling to receive the upper and lower ends of metal studs to which the metal lathing was secured, and (2) in structures both fireproof and non-fireproof in which channel or angle runners were secured to the floor and ceiling to receive the lower and upper ends of vertical channel studs, the upper and lower ends of the studs being held against longitudinal movement by wiring or by displacing portions of the flanges of the channel beam around the ends of the studs;

That in constructing furring and partition walls of the first above referred to type, considerable expense was involved by the labor necessary to cut the recesses in the floor and ceiling in vertical alignment with each other, to receive the upper and lower ends of the studs, and care was required to form the recesses for the ends of the studs in exact alignment so that the walls to be constructed on the studs would be straight;

That in constructing furring and partition walls of the second above referred to type, the studs could not be furnished in uniform lengths as it was necessary to provide for variations in the ceiling heights even in the same room due to the rough construction, and it was further necessary to separately secure the bottom and top of each stud to the channel floor and ceiling runners.

Affiant has frequently had occasion to examine patents to ascertain the structures disclosed by them, and can readily understand the structures disclosed in the drawings and specifications of patents;

That he has examined and understands the wall construction disclosed and described in Holdsworth Patent No. 2,105,770;

That the said Holdsworth furring and wall construction comprises a base or floor runner having spaced grooves or

slots to receive the lower ends of studs through the engage-
[fol. 37] ment of the webs of the studs with such slots or grooves, and the side flanges of the channel studs overlap the floor runner adjacent the slots therein, consequently the lower ends of the studs are securely held against either longitudinal or transverse movement; and a ceiling member or runner having a depending vertical flange, into engagment with which the upper ends of the studs extend and by which they are held against longitudinal and transverse movement. The depending flange of the ceiling member is of such a depth that the studs may be engaged with the ceiling member and lifted while in such engagement a sufficient height for the lower ends of the studs to be engaged with the corresponding grooves in the floor runner;

That the said Holdsworth furring and wall structure is of great practical value as compared with the previous types of such structures, in that the studs may be readily connected with the ceiling member and then lowered into engagement with the base or floor member without the necessity of any attaching means or any operation on the ceiling or floor runners to properly space and retain in position the upper and lower ends of the studs. The depending flange of the ceiling member not only serves to permit the necessary engagement of the upper ends of the studs but also permits studs of uniform heights to be assembled with the ceiling member and floor member, with sufficient variation permitted by the formation of the ceiling runner to take care of the varying ceiling heights found in the rough construction in each room. Consequently the studs may be cut in uniform lengths and used in locations having slightly varying heights. Furthermore, the depending perforated flange of the ceiling runner permits the height of the lath to vary within the dimensions of the depending flange so that lathing of the same vertical dimension may be used in localities slightly varying in height, the perforations permitting the plaster when applied to the lathing and depending flange of the ceiling member to extend through the holes [fol. 38] and completely envelop and embed lathing, runner and studs;

That since the exploitation by plaintiff of the said Holdsworth type of furring and partition wall, such type has been recognized by builders as being superior to the previously used types of furring and wall structures which the said

Holdsworth type has largely superseded and displaced; the practical superiority of the Holdsworth type of furring and wall structure has not only been recognized by builders but by competitors of plaintiff, including the defendants in this suit, who have copied the said Holdsworth type in forms modified slightly to appropriate the Holdsworth invention;

That he has examined and understands the constructions shown in the seventeen prior patents referred to, but not explained or analyzed, in the affidavit of Thomas E. Robertson, filed by defendants in support of their motion for summary judgment;

That the only one of the said prior patents considered by Mr. Robertson which at all approaches the characteristic of the Holdsworth invention of providing a furring and wall construction in which the studs are first engaged with a ceiling member and then lifted while in such engagement so as to permit their lower ends to drop into engagement with the floor member or runner, is Orr Patent No. 913,152, granted February 23, 1909, for Fireproof Partition;

That the so-called "fireproof partition" disclosed in the said Orr patent has never, to affiant's knowledge, been constructed or been used, as it is impracticable;

That the purpose or object of the fireproof partition disclosed in the Orr patent is stated to be that of providing means for permitting the vertical expansion of the studs under heat, and in order to accomplish that the engagement of the upper ends of the studs with the ceiling member is such as to protect the upper ends of the studs from the plaster when it is applied to the lathing and studs; in other [fol. 39] words, the upper ends of the studs are prevented from being embedded in the plaster;

That the Orr construction forms hollow pockets at the upper ends of the studs which militate against the sound-proof and fireproof character of the wall;

That moreover the plaster would not adhere to the metal surfaces of the pockets depending from the ceiling member into which the upper ends of the studs extend, and there is no means provided for securing the lathing to the said depending pockets of the ceiling member or to any ceiling runner;

That Orr did not have in mind and did not disclose to the public through his patent, a furring and wall structure

possessing the advantageous characteristics of the wall structure disclosed to the art by the Holdsworth patent;

That the Golding, Balduf, Carrick, Dawson, Kearns, Hill and McCartney patents cited, without explanation, in the affidavit of Mr. Robertson as showing "depending, perforated, vertical flange and metal lath overlapping such flange", do not disclose a structure embodying the limitations to which Claim 6 of the Holdsworth patent has been limited by disclaimer;

That none of said patents cited by Mr. Robertson discloses to the art anything which would be helpful in embodying in practical form the Holdsworth wall construction as defined by Claim 6;

That they do not disclose a wall construction comprising a ceiling member having a perforated depending flange which is engaged by and supports against movement the upper ends of studs without any separate means of attachment being applied;

That the patents to Parsons, Hegbom, Turnbull, Henderson, Frazier, Manske, McNeil, Collins and Bleuel, cited but not explained by Mr. Robertson as showing base members having recesses to receive the lower ends of channel studs, do not disclose the wall structure comprising the combina- [fol. 40] tion of cooperating elements set forth in Claim 7 of the Holdsworth patent as modified by disclaimer;

That none of said patents discloses a base member which may be engaged by and hold against movement the lower ends of studs after such studs have first been lifted into engagement with the ceiling member;

That the various patents cited by Mr. Robertson do not disclose to one expert in the art of furring and wall constructions, features which could be embodied in the fireproof partition disclosed in the Orr patent so as to produce a resulting structure corresponding to that of Holdsworth;

That none of the prior art patents cited by Mr. Robertson, and no prior structures known to affiant, disclose the combination of elements which constitute the practical and efficient wall construction invented by Holdsworth and defined in Claims 6 and 7 of his patent;

That in the opinion of affiant no one expert in the art of furring and wall structures, with all of the prior patents before him, could produce the Holdsworth wall construction

by the mere exercise of his mechanical skill and without involving inventive ingenuity.

And further deponent saith not.

William B. Turner.

Subscribed and sworn to before me this 4th day of October, 1940. Elizabeth M. Vonhof, Notary Public. (Seal.)

[fol. 41] In United States District Court

Civil 4-247

Milcor Steel Company

v.

Fuller Co. et al.

Memorandum Opinion

Confronted, as I am, with the decision of the Supreme Court in Altoona Publix Theatres v. American Tri-Ergon Corp., 294 U. S. 477, I see no escape from the necessity of granting defendants' summary judgment upon the pleadings. Clearly, I think, plaintiff's disclaimers as respects Claims 6 and 7 imported into them elements that were excluded by their language prior to its revision. For this reason, the claims are now invalid and must fall.

Jno. C. Knox, D. J.

12/2/40

[fol. 42] In District Court of the United States for the Southern District of New York

Civil Action No. 4-247

Milcor Steel Company, Plaintiff,

v.

George A. Fuller Company, Neff Lathing Company, Inc., and Conver Steel & Wire Company, Inc., Defendants

Judgment

This cause came on to be heard on motion of the defendants for judgment on the pleadings and for summary judgment, and was argued by counsel; and thereupon, upon consideration thereof and pursuant to the memorandum of the court herein dated December 2, 1940, it is Ordered, Adjudged and Decreed as follows, viz:

1. That plaintiff's disclaimers to claims 6 and 7 of Patent No. 2,105,770 imported into them elements that were not included by their language prior to revision.

2. That claims 6 and 7 of Letters Patent of the United States to Holdsworth granted January 18, 1938 and numbered 2,105,770 are invalid and void by reason of improper disclaimer.

3. That judgment is hereby entered in favor of the defendants and each of them and against the plaintiff.

[fol. 43] 4. That costs in the sum of Twenty-six and 60/100 ($26.60) Dollars be and the same hereby is awarded to defendants against the plaintiff.

5. That the complaint herein be and the same is hereby dismissed.

Approved Dec. 17, 1940.

Jno. C. Knox, U. S. D. J.

Judgment rendered Dec. 18, 1940.

George J. H. Follmer, Clerk.

Approved as to form only and without Waiver of Appeal.
Mock & Blum, by Asher Blum, a member of the firm,
Attorneys for Plaintiff.

[fol. 44] In District Court of the United States, Southern District of New York

[Title omitted]

Notice of Appeal

Sirs:

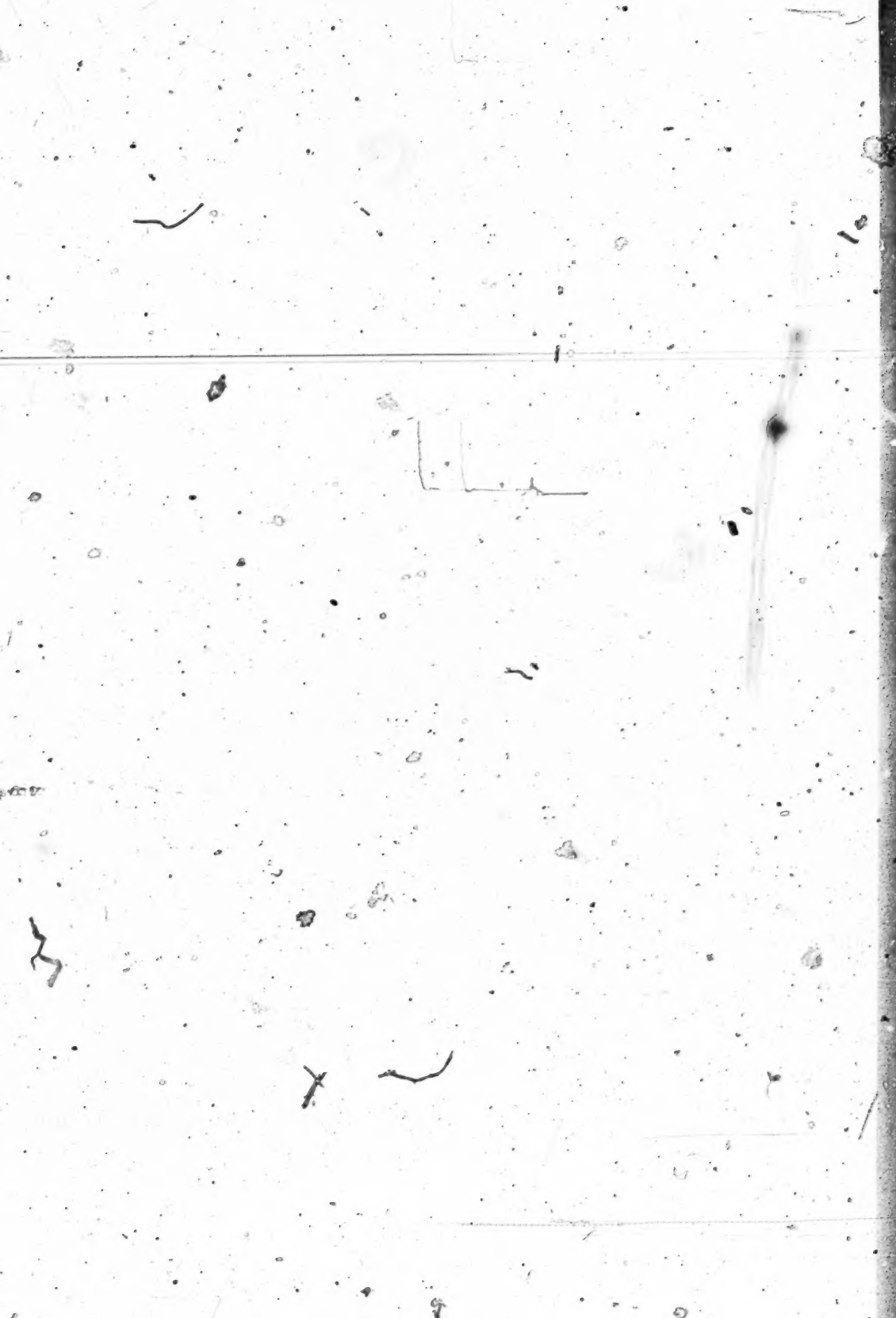
Notice is hereby given that Milcor Steel Company, the plaintiff above named, hereby appeals to the Circuit Court of Appeals for the Second Circuit from the final judgment entered in this action on December 18th, 1940.

Mock & Blum, by Asher Blum, a member of the firm,
Attorneys for Appellant, Milcor Steel Company,
10 East 40th Street, New York, N. Y.

Dated New York, N. Y., January 31, 1941.

To: Kenyon & Kenyon, Esqs., Attorneys for Defendants,
165 Broadway, New York, N. Y.

Clerk, U. S. District Court for the Southern District of New York.



30 Jan. 18, 1938. H. HOLDSWORTH 2,105,770

WALL CONSTRUCTION

Filed Oct. 15, 1936

Fig. 1.

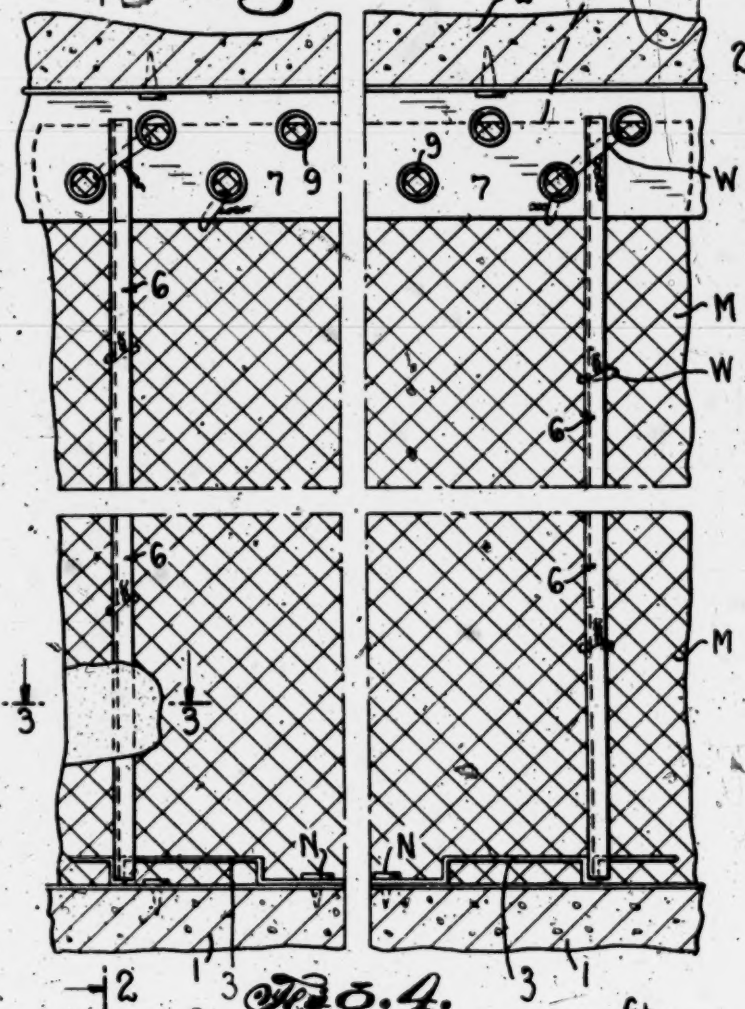


Fig. 2.

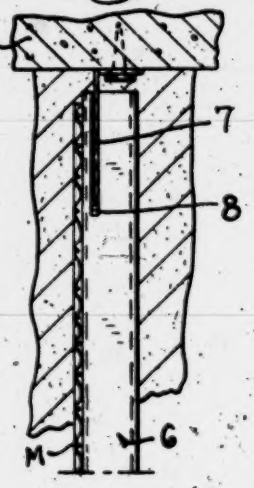


Fig. 4.

Fig. 5.

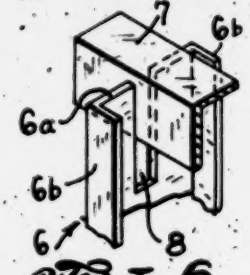
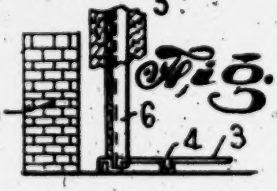


Fig. 6.

Fig. 3.

Fig. 7.



INVENTOR.
Harry Holdsworth
BY
Mock & Blum
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,105,770

WALL CONSTRUCTION

Harry Holdsworth, Bronxville, N. Y., assignor to Holdsworth Bros. Inc., New York, N. Y., a corporation of New York

Application October 15, 1936, Serial No. 105,661

7 Claims. (Cl. 72—46)

My invention relates to a new and improved wall or partition construction.

One of the objects of the invention is to provide an improved construction which can be used for constructing interior walls or partitions between rooms or which can also be used for constructing the furring of the exterior wall of a building.

Another object of the invention is to provide improved means for supporting metal lath or the like, for serving as a support for the plaster.

Another object of the invention is to provide a structure which will make it unnecessary to construct the channels or other vertical supporting means, to size.

Another object of the invention is to provide a construction whereby the channels or other supporting members are held at their bases against movement in any direction, and the upper ends of said channels or other supporting members are held so as to limit a turning movement in a direction parallel to the front or main wall of the channel.

Another object of the invention is to provide a structure which could be readily installed at minimum cost and which will prevent moisture from peeling or otherwise affecting the furring of an exterior wall or the plaster of the partition.

Other objects of my invention will be set forth in the following description and drawing which illustrates a preferred embodiment thereof, it being understood that the above statement of the objects of my invention is intended generally to explain the same without limiting it in any manner.

Fig. 1 is a rear elevation showing a preferred form of construction.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a sectional view in a horizontal plane, partially in elevation, showing the assembly between the base of the structure and the channels.

Fig. 5 is a detail front elevation of the supporting base.

Fig. 6 is a general perspective view showing the assembly between the supporting channel irons and the top member of the device.

Fig. 7 shows how the angle irons which support an exterior wall, and the plaster covering of the wall, are spaced from the masonry of the building.

Referring to Figs. 1 and 2, these show a wall 1 and a ceiling 2. A base 3 is suitably connected to the top surface of the floor 1. This can be done by nails N or screws or the like. The base 3 may be made of flat metal strapping or the like, which has been bent so as to provide a series of recesses 4. Said base 3 is provided with portions 5, through which the nails N or the like can be driven into the floor.

The supporting means for the wall or partition, comprises channel irons 6.

As shown in Fig. 4 the width of the metal base 3 is substantially equal to the inside width of the channels 6. Hence the main wall 6a of each channel 6 fits quite snugly in a depression 4, and the inner surfaces of the side walls 6b of the channels 6 snugly abut the side surfaces of the base 3.

Hence the bottom of each channel iron 6 is held against movement in any direction. A suitable top member 7 is connected to the bottom surface of the ceiling 2 by means of nails or other securing devices.

As shown in Fig. 2 the member 7 is of angular shape, having a depending vertical flange. At its top end, the wall 6a of each channel is provided with a vertical cut-out or slot 8 which can be quite narrow. The vertical flange of the member 7 projects into these slots which are provided in the main walls 6a of the channels. The fit between said flange and the vertical walls of slots 8 may be a loose fit. Hence the vertical flange of the member 7 is parallel to the plane of the wall or partition, and the walls 6a of the channels are perpendicular to the plane of the wall or partition.

The vertical flange of the member 7 is provided with openings 9 which are formed by punching the metal of said vertical flange so as to produce laterally projecting burrs at the inner face or outer face of said verfical flange. When the assembly is made, these burrs project laterally to a sufficient distance to contact with the opposite faces of wall 6a, if the channel is tilted. The burrs therefore act as stop members so as to limit any tipping of the channel in a direction perpendicular to the plane of the main wall 6a. The holes 9 are arranged in pairs and each main wall 6a is located between the holes of one of said pairs, and close to said holes, so as to prevent the channel from being tilted too much.

The horizontal distance between each pair of holes 9 may be substantially greater than the thickness of the wall 6a so as to produce a loose assembly at the tops of the channel irons, while the burrs of the holes 9 prevent the channels

from tipping forwards or backwards too much.

The assembly is made by raising a channel until the vertical flange of the angle iron 7 enters the slot in each flange 6a, and then lowering the channel until its bottom end fits in the base 3. This assembly is extremely simple and convenient. The height of the vertical flange of member 7 is less than the heights of slots 8. This construction makes allowance for channels of different heights. Hence there is a vertical sliding fit between the upstanding members 6 of the wall or partition, and the corresponding base member and ceiling member, and said vertical sliding fit is operative to maintain said upstanding member 6 against any substantial tilting.

When the assembly has been completed, the side flanges 6b of the channel irons 6 form two aligned rows. Metal lath or the like can be connected to one or both of these rows of side flanges. Any suitable open metal work or mesh can be employed. Imperforate metal sheets can be used.

If the structure is to be used for forming an interior wall, the metal lath M may be connected to both rows of flanges 6b, or to one of said rows of flanges 6b.

The metal lath M is connected to the channels by means of tying wire W, which is wrapped around each of the channels and which passes through suitable openings of the metal lath. After this metal construction has been completed, the plastering work can be done so as to form either a hollow partition or a solid partition.

The top of the metal lath may extend up to the line 11, but it is one of the important advantages of the construction that it is necessary to have the top of the metal lath overlap the bottom of the vertical flange of the angle iron 7 only slightly, and said metal lath may vary in height.

Additional tying wire W which passes around the top ends of the channels connects the top of the metal lath to the angle iron 7, through the openings 9, so as to tie the top of each channel securely to the vertical flange of the angle iron and to the channels, and thus prevent any tipping of the top ends of the channels. The plastering work is completed by covering the metal lath and the channels and the angle iron with plaster.

If a solid partition wall is desired, it is more economical to provide the row of channel irons with metal lath only at one of the rows of flanges 6b. The plasterer then applies the so-called "scratch" coating to said metal lath so that said scratch coating penetrates through the holes of the lath. This scratch coating consists substantially of gypsum and sand.

After the scratch coating has hardened the plasterer can apply the finishing or "brown" coating to the scratch coating and he can then plaster the wall at the other row of flanges 6b so as to make a solid partition in which the channels and the angle iron are completely imbedded.

If a hollow partition is desired, the metal lath is applied to both rows of flanges 6b. The scratch coating is applied to the metal lath at both sides of the partition wall, so that the scratch coating penetrates only partially into the space between the rows of lath, leaving a space between the two rows of metal lath. After this scratch coating has hardened, the "brown" or finishing coating is then applied.

If the construction is used for the exterior wall of a building, metal lath is applied only to the inner flanges 6b and the work is plastered.

The metal lath can be applied to the flanges 6b in the form of sheets of suitable length whose vertical edges overlap each other.

Heretofore, in making exterior walls, masonry has been applied to the metal skeleton of the building and the plaster work has been applied directly to the rear surface of the masonry. Therefore moisture which penetrated the masonry contacted directly with the plaster so as to enter or penetrate the wall. It has also been proposed to apply furring to the inner face of the masonry and to space the wall from said furring, and to connect the furring to the adjacent face of said wall, by means of intermediate members along which moisture could creep, after said moisture had penetrated the outer wall of the furring.

According to the improved construction, and as shown in Fig. 7, the wall or partition is spaced wholly from the inner face of the masonry, in that there are no intermediate members along which the moisture can creep to contact with said wall.

In order to avoid limiting the invention unduly, it may be stated that the wall is spaced substantially wholly from the inner face of said masonry, in that there is a substantial absence of intermediate members along which the moisture can creep from the masonry to the wall.

According to the improved construction, the channel irons do not contact with the masonry and the plaster coating is spaced wholly from the masonry, thus leaving an air space having a space whose width may be as great as two inches to three inches, so that the moisture cannot traverse this intervening space.

The masonry of the building is designated by the reference letter B in Fig. 7.

Likewise in making an interior or partition wall, it is desirable to use the improved furring so as to prevent any contact between the end of such interior partition wall and the masonry of the building.

Whenever I refer to channel irons, I do not wish to be limited to any form of vertical supporting members, and I do not wish to be limited to an angle iron for completing the top of the metal construction.

I have shown a preferred embodiment of my invention but it is clear that numerous changes and omissions can be made without departing from its spirit.

I claim:

1. An improved wall construction for a room, said construction comprising a base member which is connected to the floor of the room, said base member having transverse recesses at the top thereof, said recesses being substantially perpendicular to the plane of the wall, channel irons having their main walls located in said recesses and having the inner surfaces of their side walls close to the longitudinal edges of said base member so that the bottom ends of the channel irons are prevented from substantially shifting relative to said base member, the main walls of said channel irons having vertical slots at the top ends of said main walls, a top member connected to the ceiling and having a vertical flange, said vertical flange being located in said vertical slots.

2. An improved wall construction for a room, said construction comprising a base member which is connected to the floor of the room, said base member having transverse recesses at the top thereof, said recesses being substantially perpendicular to the plane of the wall, channel irons

having their main walls located in said recesses and having the inner surfaces of their side walls close to the longitudinal edges of said base member so that the bottom ends of the channel irons are prevented from substantially shifting relative to said base member, the main walls of said channel irons having vertical slots at the top ends of said main walls, a top member connected to the ceiling and having a vertical flange, said vertical flange being located in said vertical slots, said vertical member having means to limit the tilting of the top ends of said channel irons.

3. An improved wall construction for a room, said construction comprising a base member which is connected to the floor of the room, said base member having transverse recesses at the top thereof, said recesses being substantially perpendicular to the plane of the wall, channel irons having their main walls located in said recesses and having the inner surfaces of their side walls close to the longitudinal edges of said base member so that the bottom ends of the channel irons are prevented from substantially shifting relative to said base member, the main walls of said channel irons having vertical slots at the top ends of said main walls, a top member connected to the ceiling and having a vertical flange, said vertical flange being located in said vertical slots, the vertical flange of said top member having openings whose walls are provided with burrs, the main wall of each channel iron being located between a pair of said burrs, said burrs being of sufficient width to contact with the main wall of the intermediate channel iron if said channel iron is tilted, so that said burrs are operative as stop members to limit the tilting movement of said intermediate channel iron.

4. An improved wall construction for a room, said construction comprising a base member which is connected to the floor of the room, said base member having transverse recesses at the top thereof, said recesses being substantially perpendicular to the plane of the wall, channel irons having their main walls located in said recesses and having the inner surfaces of their side walls close to the longitudinal edges of said base member so that the bottom ends of the channel irons are prevented from substantially shifting relative to said base member, the main walls of said channel irons having vertical slots at the top ends of said main walls, a top member connected to the ceiling and having a vertical flange, said vertical flange being located in said vertical slots, the vertical flange of said top member having openings whose walls are provided with burrs, the main wall of each channel iron being located between a pair of said burrs, said burrs being of sufficient width to contact with the main wall of the intermediate channel iron if said channel iron is tilted, so that said burrs are operative as stop members to limit the tilting movement of said intermediate channel iron, and perforated metal means connected to at least one of the rows of side flanges of said channel members by means of wire members which pass through said perforated metal means and around said channel irons, some of said tying members also passing through said openings and around the upper ends of said channel irons.

5. A hollow partition wall for a room, said wall having a base member, said base member having its longitudinal axis parallel to the plane of the wall, said base member having spaced transverse recesses in the top thereof, channel irons having their lower ends associated with said base member, each said channel iron comprising a main wall and two side walls, the main wall of each channel iron being located in one of said recesses and fitting substantially snugly therein, the side walls of said channel irons having their inner surfaces close to the side edges of said base member so that the lower ends of each channel iron are held relative to said base member so as to prevent any substantial shifting between said lower ends and said base member, the upper ends of the main walls of said channel irons having vertical slots, an angle iron connected to the underside of the ceiling and having a vertical flange, said vertical flange being located in said vertical slots, the bottom edge of said vertical flange being spaced from the bottom walls of said slots, said vertical flange having openings whose edges are provided with burrs, the upper end of the main wall of each channel iron being located between a pair of said burrs, said burrs being sufficiently close to the upper end of the main wall of the intermediate channel iron and said burrs being of sufficient width so as to limit the tilting movement of the upper end of the intermediate channel iron, sheets of metal lath connected continuously to at least one of the rows of side flanges of said channel irons, the upper edges of said sheets overlapping the bottom edge of said vertical flange, tying wire members passing around said channel irons and through said sheets, some of said tying wire members passing through said openings and around the intermediate channel irons, said sheets having finishing coatings of plaster, said finishing coatings of plaster extending only partially into the spaces between said sheets, so as to form a partition wall having an air space.

6. A wall construction for a room having a floor and a ceiling, said wall construction including a base member and a ceiling member, said wall construction also including upstanding wall-supports whose height is less than the maximum vertical distance between said base member and said ceiling member, said upstanding wall supports being located between said base member and said ceiling member, said wall supports being vertically movable relative to said base member and to said ceiling member when said wall supports are assembled with said base member and said ceiling member, and means operative to prevent any substantial tilting movement of said wall supports from their predetermined upstanding position.

7. A wall construction for a room having a floor and a ceiling, said wall construction including a base member and a ceiling member, said wall construction also including upstanding wall-supports whose height is less than the maximum vertical distance between said base member and said ceiling member, said upstanding wall supports being located between said base member and said ceiling member, said wall supports being vertically movable relative to said base member and to said ceiling member when said wall supports are assembled with said base member and said ceiling member, said base member and said ceiling member being shaped to provide means which are operative to prevent any substantial tilting of said wall supports from their predetermined upstanding position.

HARRY HOLDSWORTH.

DISCLAIMER

2,105,770.—*Harry Holdsworth*, Bronxville, N. Y. WALL CONSTRUCTION. Patent dated January 13, 1938. Disclaimer filed November 2, 1939, by the assignee, *Milcor Steel Company*.

Hereby makes disclaimer as to claims 6 and 7 as follows:

(*a*) As to claim 6, except a wall construction for a room in which the ceiling member comprises a vertical depending perforated flange, one side of which is overlapped by metal lathing.

(*b*) As to claim 7, except a wall construction for a room in which the base member is composed of a longitudinal strip having recesses to receive the lower ends of the webs of channel wall supports, the flanges of the channel wall supports overlapping the base member adjacent the recesses.

[*Official Gazette November 28, 1939.*]

[fols. 52-156] DEFENDANTS' EXHIBIT NO. 2—PRIOR ART PATENTS

35

W. ORR.

FIREPROOF PARTITION.

APPLICATION FILED OCT. 12, 1907.

913,152.

Patented Feb. 23, 1909.

Fig 1.

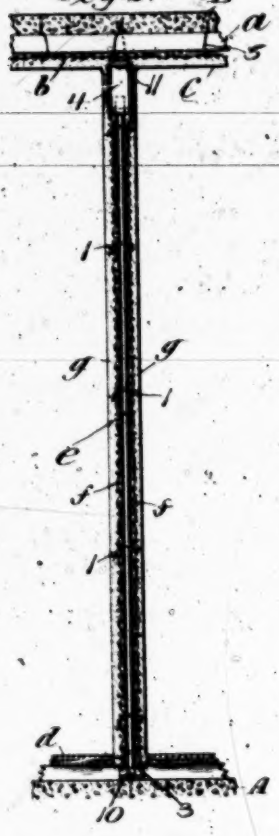


Fig 2.

Fig 8

Fig 7

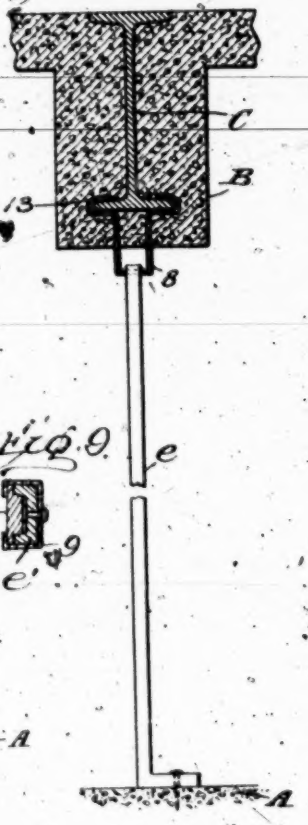


Fig 9.

Fig 5.

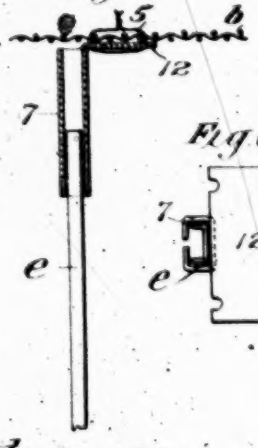


Fig 6

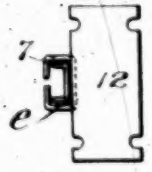


Fig 3

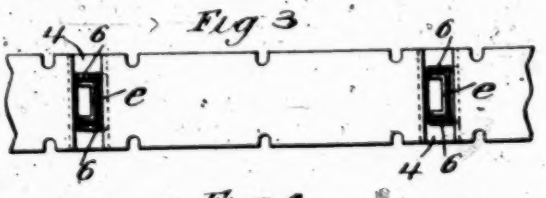
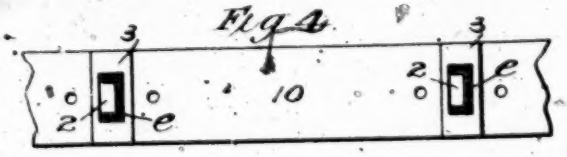


Fig 4



Witnesses:
J. C. Graves
A. Kehoe

Inventor:
William Orr
by his Attys
Philipp Dauppa Rice & Kennedy

rapid means for quickly placing and properly positioning the studs, the floor strips 10 being nailed to the floor A, as shown, or otherwise secured thereto. At the ceiling end the studs extend through openings in downwardly extending corrugations or bent portions 4 of ceiling stud plates 11, which are shown as secured in place by lacing them by wires 5 to the ceiling bars *a* and lathing *b*. These downwardly extending corrugations or portions of the plates 11 are of sufficient depth to allow for the possible expansion of the studs *e* in case of fire.

In solid partitions, it is important that the space above the studs *e* should not be filled by the plaster or other plastic material of the partition, and, in the construction shown, this is prevented by forming on the downwardly extending portions 4 of the plates 11, wings 6, which are bent around the studs *e* so as to form a sleeve inclosing the upper ends of the studs *e*, so as to leave open space for expansion.

After the studs are assembled with the plates 10, 11, as shown in Fig. 2, the lathing *f* is applied and the partition finished with plaster, as shown in Fig. 1.

In Fig. 5 there is shown a construction in which a ceiling plate 12, which may be secured to the ceiling in any suitable manner, being shown as secured to the ceiling lathing *b* by wire ties 5, carries a downwardly extending sleeve 7 which may be formed in any suitable manner, as by cutting and bending a piece of sheet metal to proper form, which sleeve 7 receives the upper end of the stud *e*, thus allowing for expansion, as in the construction shown in Figs. 1 to 4.

In Fig. 7 there is shown a construction for a partition extending in line with a ceiling beam, in which the stud is secured to the floor by nailing, as usual, but at the upper end is held in place by a sleeve 8 on a sheet metal clip 13, which is clamped on the bottom flange of the beam C, the sleeve 8 extending below the concrete B, in which the clip is embedded, so as to provide space within the sleeve below the concrete for the expansion of the stud *e*.

Other constructions embodying the invention may readily be designed by those skilled in the art, and the construction will be varied according to circumstances. In many cases suspended ceilings are used with an air space between the ceiling and concrete or other floor above, which air space may be sufficient for the expansion of the stud, as shown, for instance, in my Letters Patent No. 671,679. In such cases, the partition studs may simply run through the metal lathing or flat stud plates secured thereto, the studs expanding in the space between the ceiling and floor above. It is not essential that the studs shall be in a single piece, although this is preferable, or that the provision for expansion shall be made next the ceiling or floor. The studs may be made in two parts, one attached to the floor and the other to the ceiling, and having their adjacent ends inclosed by a sleeve with space between the ends for expansion, or with overlapping ends free to move on each other and held in place by a sleeve or slotted attachment, or other means permitting freedom of movement. Such a construction is shown in Figs. 8 and 9 in which the stud *e'* is made in two parts extending respectively from the floor and ceiling, and having overlapping ends inclosed by a sleeve 9 which may be secured to one part of the stud, as shown, and overlap the other part. In solid partitions the sleeve is preferably made of such length, as shown, as to extend beyond the ends of the studs sufficiently to form an expansion space which will not be filled by the plastic material of the partition. The stud *e'* in this construction is shown as formed of ribbed and grooved parts to strengthen the stud edgewise, but it will be understood that this is not essential to the present invention and that these studs may be of any other suitable form.

What is claimed is:—

1. A metal partition frame having vertical metal studs free to expand vertically under excessive heating in case of fire whereby distortion of the studs or injury to the partition is prevented.

2. A metal partition frame having vertical metal studs having free ends so that the studs may expand vertically under excessive heating in case of fire and having their free ends inclosed by sleeves to prevent the plastic material filling the expansion space.

3. A metal partition frame having vertical metal studs formed in a single piece extending from floor to ceiling and having their upper ends held in place by means leaving the ends free to permit the expansion of the studs under excessive heating in case of fire.

4. A metal partition frame having vertical metal studs formed in a single piece extending from floor to ceiling and having their upper ends held in downwardly extending portions of ceiling stud plates providing space and leaving the ends free for the expansion of the studs under excessive heating in case of fire.

5. The combination with a floor and ceiling, of metal studs *e* extending from floor to ceiling, ceiling stud plates 11 secured to the ceiling and having downwardly extending portions 4 for holding the upper ends of the studs *e* in place and leaving the ends free and providing space for the expansion of the studs under excessive heating in case of fire.

6. The combination with a floor and ceiling, of metal studs *e* extending from floor to ceiling, ceiling stud plates 11 secured to the ceiling and having downwardly extending

UNITED STATES PATENT OFFICE.

WILLIAM ORR, OF TRENTON, NEW JERSEY, ASSIGNOR TO THE NEW JERSEY WIRE CLOTH COMPANY, OF TRENTON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

FIREPROOF PARTITION.

No. 913,152. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed October 12, 1907. Serial No. 397,052.

To all whom it may concern:

Be it known that I, WILLIAM ORR, a citizen of the United States, residing at Trenton, county of Mercer, and State of New Jersey, have invented certain new and useful Improvements in Fireproof Partitions, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to an improved metal frame or skeleton for fire proof partitions, the object of the invention being to avoid the distortion of the metal studs by expansion in case of fire.

In fire proof buildings the partitions are usually formed of a metal framework of studding and metallic lathing, covered or filled with plaster or other plastic material. These metal studs have been attached to the floor and ceiling in such a manner that there is no provision for expansion of the stud, with the result that, in case of excessive heat from fire, the studs become distorted by expansion and throw off the plastic covering, or the whole partition is distorted so that it has to be reconstructed. These studs also, are frequently provided with projections to which the lathing is secured and which act to displace the lathing and plastic material in the expansion of the studs. The present invention avoids this difficulty by using studs of any desired cross section, which are enough shorter than the space to be filled between the floor and ceiling, or so secured in place as to allow for the expansion of the stud under the extreme heat to which it may be subjected. The studs will preferably be rolled to a uniform size throughout and so as to form a straight and comparatively smooth surface throughout their length, and the metallic lathing, when used, is so attached as to be free from the movement of the stud in expanding, so that the studs may expand independently of the plastic material and lathing.

The invention is generally applicable in fireproof building construction, and may be embodied in widely different forms, depending somewhat upon the character of the floor and ceiling constructions with which it is used.

For purpose of illustration, the invention is shown in the accompanying drawing as applied in connection with two different forms of ceiling construction, and these embodiments of the invention will now be described in detail, and the features forming the invention specifically pointed out in the claims.

In the drawings—Figure 1 is a vertical section transversely to the partition, showing a completed partition embodying the invention as applied in connection with ceiling bars and a lathing and plaster ceiling. Fig. 2 is an elevation partly in section of the partition studs and their supports of Fig. 1. Fig. 3 is a plan view of the ceiling stud plates and studs shown in Figs. 1 and 2. Fig. 4 is a plan view of the floor stud plate of Figs. 1 and 2 with the studs in section. Fig. 5 is a detail view of a modified form of ceiling attachment for the stud. Fig. 6 is a plan view of the ceiling stud plate of Fig. 5. Fig. 7 is a view similar to Fig. 2, showing the invention applied with studs connected to the ceiling beams. Fig. 8 is a view similar to Fig. 2, showing a stud made in two parts with overlapping free ends for expansion movement. Fig. 9 is a horizontal section of the same on the line 9 of Fig. 8.

Referring now especially to Figs. 1 to 4, A is the fire proof floor of concrete or similar material and B a similar floor of the next story, which floor B carries the ceiling formed by the ceiling bars *a* embedded in the floor and supporting the ceiling lathing *b* and plaster *c*. The usual floor of joists and boards *d* is shown on the concrete floor A.

The partition, in the form shown, consists of the metal studs *e*, to which is laced on one or both sides by wires 1 the metallic lathing *f*, to which is applied the plaster *g* to complete the partition, the partition shown being of that class known as "solid partitions" with no central air space.

The construction thus far described is common, the studs *e* being secured in place in previous constructions so that no expansion is permitted, being abutted directly against the floor and ceiling, or otherwise having a fixed length.

Referring now to the support of the studs *e* in accordance with the present invention, provision for expansion is made at the ceiling end of the studs, the studs being held in place on the floor A, either by nailing them to the floor as usual, or as shown in Figs. 1 to 4, by inserting them in openings 2 formed in corrugations or raised portions 3 of a floor strip 10, this being a convenient and

portions 4 for holding the upper ends of the studs *e* in place and providing space for the expansion of the studs under excessive heating in case of fire and the portions 4 being formed to provide sleeves inclosing the studs for preventing the plastic material filling the expansion space.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

WILLIAM ORR.

Witnesses:
E. W. ARNOLD,
E. R. FELTY.

39 (No Model.)

J. F. GOLDING.

PARTITION FOR BUILDINGS.

No. 530,940. Patented Dec. 18, 1894.

Fig. 1.

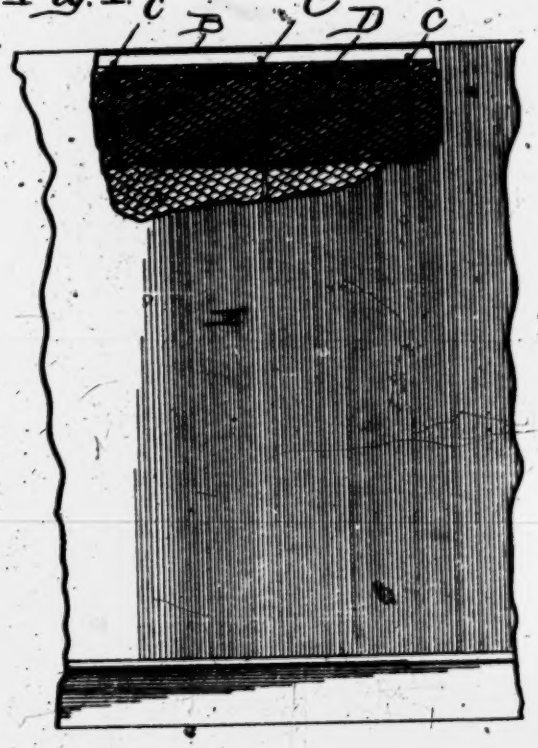


Fig 3

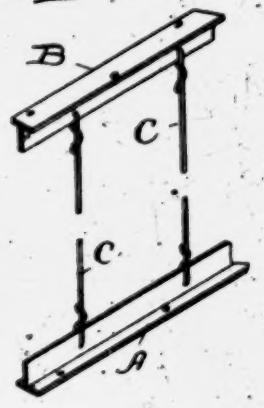


Fig 2

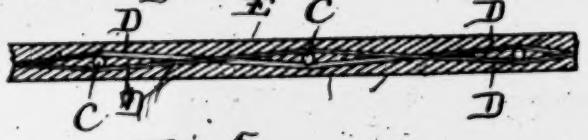


Fig 5

Fig 4

Witnesses:
Saml C Curtis
Emma Hack

Inventor:
John F. Golding
By Munday Evarts & Adcock
His Attorneys.

UNITED STATES PATENT OFFICE.

JOHN F. GOLDING, OF CHICAGO, ILLINOIS.

PARTITION FOR BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 530,940, dated December 18, 1894.

Application filed May 22, 1893. Serial No. 475,077. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. GOLDING, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Partitions for Buildings, of which the following is a specification.

This invention is intended as a substitute for the ordinary tile partitions and ordinary lath and plaster partitions commonly employed in buildings.

My object in the invention is to cheapen the structure, to economize space and to avoid the formation of flues wherein vermin may abide, and which shall be fire proof, sound proof and strong.

In my improved construction I first set vertical iron bars or wires along the line of the proposed structure and stretch along these a web or sheet of metal lathing, such for instance as that now commonly known as "expanded metal," and then build the plaster to the desired thickness upon each side of this web. Metal lathing of this character is adapted to support the plaster equally well upon either side, inasmuch as the plaster forced through the meshes of the lath from one side forms keys upon the other side which are well adapted to support the plaster upon said other side.

The nature of my invention will be more fully understood from the accompanying drawings, in which—

Figure 1 is an elevation, partly broken away, of a partition constructed according to my invention. Fig. 2 is a horizontal section of the same. Fig. 3 shows the method of positioning and attaching the vertical members to which the web of lathing is secured. Fig. 4 shows a portion of the preferred construction of metal lathing; and Fig. 5 is a horizontal section of a modified construction.

In the preferred construction of my improved partition I secure T bars A, B, to the floor and ceiling, and connect them by vertical wires C which are conveniently passed through openings formed in the vertical members of the bars. These wires are drawn taut and serve to support the sheets or webs of metal lathing D. For this lathing I prefer the article now known as "expanded metal," particularly illustrated at Fig. 4, which may be purchased in sheets of considerable length and width, and is easily secured to the wires, and does not require to be stretched as is the case with wire lathing, and it does not divide the plastering as does sheet metal lathing. Instead however of the expanded metal, wire cloth or some other known forms of sheet metal lathing may be used. The sheets of lathing are preferably drawn from the front of one wire to the rear side of the next wire, and then again in front of the third wire and so on, as indicated in the drawings, the adjacent sheets thus alternating with and crossing each other, so that the partition is greatly strengthened, and the under breadths may sustain the weight of those above them. Where channel or angular bars are used in lieu of wires C the lathing is preferably secured to one side thereof. After the web of lathing is erected the plaster E is applied to both sides of the web and to the thickness desired. In the application of the plaster it is forced through the meshes of the web and forms keys upon the reverse side thereof, adapted to unite with or mechanically hold the plaster which may be applied upon said reverse side, or by the use of a centering board held against one side of the whole thickness of the partition may be formed at once.

By my invention I thus produce a partition which requires but little labor or material in its building, which will resist the transmission of sound to a greater extent than ordinary partitions; and which is both vermin and fire proof and occupies much less space than the old constructions.

In the modified construction shown at Fig. 5, I employ rigid vertical members F, and which are preferably of channel iron, as the channel sides form a key for the plaster.

I claim—

1. The solid wall or partition consisting of a series of vertical members, breadths of continuous metallic lathing secured one above the other horizontally across said series of vertical members and a body of plaster covering the vertical members and lathing upon both sides, substantially as specified.

2. The combination in a wall or partition of vertical members with breadths of metal-

lic lathing secured thereto, said breadths being interwoven with the vertical members, substantially as specified.

3. The combination in a wall or partition of vertical tension wires with breadths of metallic lathing secured thereto, said breadths being interwoven with the vertical wires, substantially as set forth.

4. The combination in a wall or partition of vertical tension wires with breadths of metallic lathing secured thereto, said breadths being interwoven with the vertical wires, and said breadths also crossing each other alternately, substantially as specified.

JOHN F. GOLDING.

Witnesses:
H. M. MUNDAY,
EMMA HACK.

42 July 20, 1937. B. E. BALDUF 2,087,867

PARTITION CONSTRUCTION

Filed July 3, 1935

FIG. 1

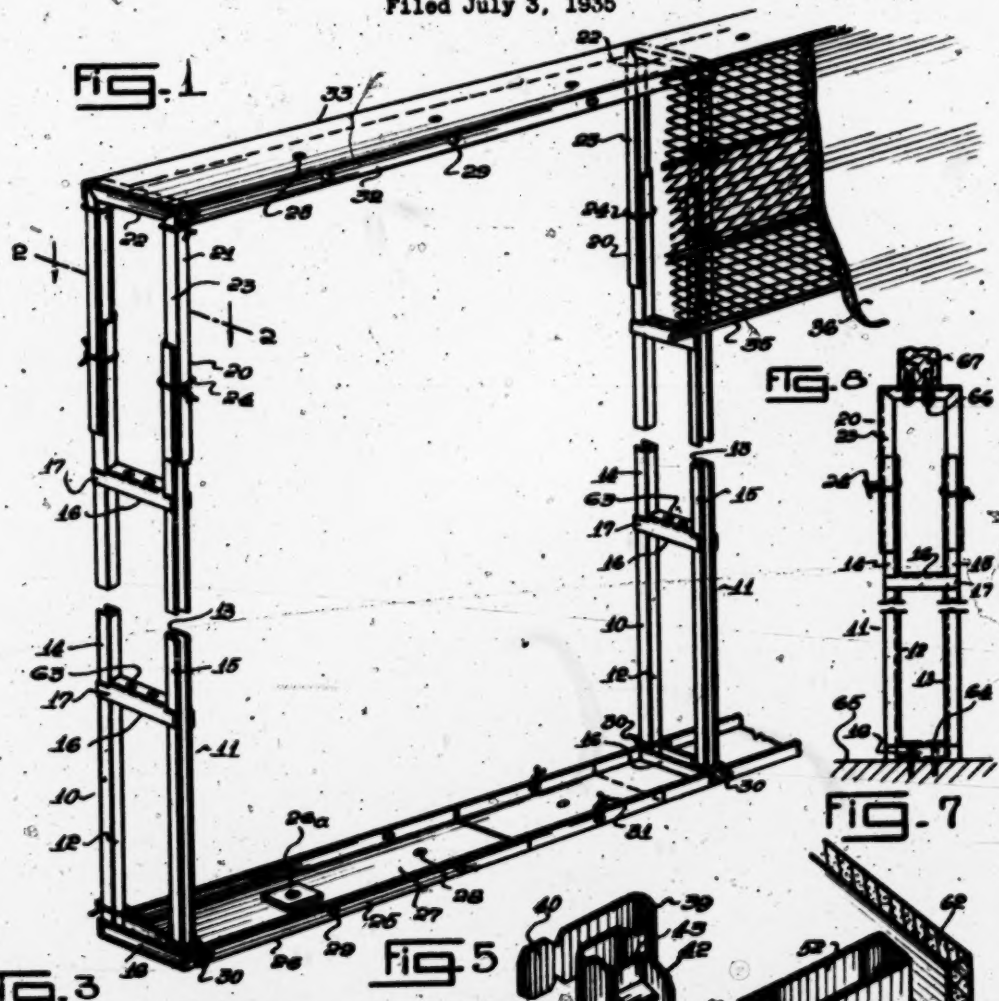


FIG. 8

FIG. 7

FIG. 5

FIG. 3

FIG. 6

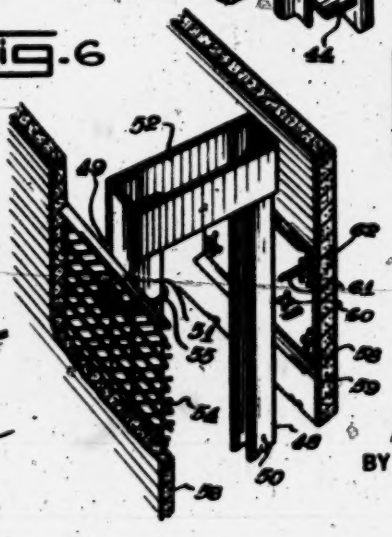


FIG. 2

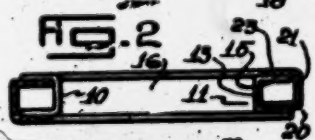
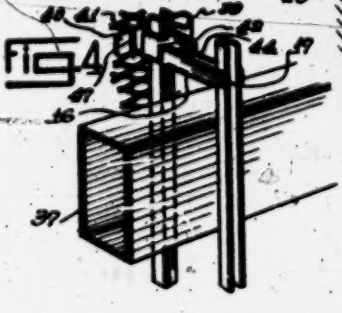


FIG. 4



INVENTOR
BRUNO E. BALDUF.
BY L. A. Paley
ATTORNEY

UNITED STATES PATENT OFFICE

2,087,867

PARTITION CONSTRUCTION

Bruno E. Balduf, Chicago, Ill., assignor to United States Gypsum Company, Chicago, Ill., a corporation of Illinois

Application July 3, 1935, Serial No. 29,591

11 Claims. (Cl. 72—46)

This invention relates to building constructions, and has reference more particularly to a partition construction in which metallic studs of improved design are employed.

In the erection of partitions, it is desirable to use open metal studs which will permit the passage of pipes, conduits and ventilating and air conditioning ducts not only in a vertical but also in a horizontal direction. These studs are preferably constructed of metal to provide a fireproof partition. The studs should be low in cost, light in weight, easily erected, and be easily cut with an ordinary lathers snippers without the use of bolt cutters and hacksaws. For use around bathrooms and in certain other partitions, the studs should be reasonably sound insulating. The studs should be capable of supporting either a plaster wall, or a wall composed of composition boards, such as gypsum or fiber boards.

An object of this invention therefore, is to provide a partition construction including lightweight, fireproof and inexpensive studs which have open webs to permit the passage of ducts, pipes, etc.

Another object of the invention is to provide lightweight metallic studs which may be easily cut to the desired length by means of ordinary lathers snippers.

Another object of the invention is to provide a metal stud which may be attached directly to the floor and ceiling without the use of plates or runners.

A further object of the invention is to provide sound insulating partitions through the use of resilient clips on special metal studs.

A still further object of the invention is to provide a metal stud adapted to support either a plaster wall or a wall made of composition boards; also to improve building constructions in other respects hereinafter specified and claimed.

Reference is to be had to the accompanying drawing forming a part of this specification, in which

Fig. 1 is a perspective fragmentary elevation of the preferred form of my improved partition structure,

Fig. 2 is a sectional plan view through one of the partition studs taken on line 2—2 of Fig. 1,

Fig. 3 is a transverse sectional view through a stud showing the manner of telescoping cut sections,

Fig. 4 is a perspective fragmentary elevation of the partition utilizing a resilient clip for metal lath support and showing a duct extending through a stud,

Fig. 5 is a perspective view of one of the resilient clips,

Fig. 6 is a perspective fragmentary view of a modified form of partition structure,

Fig. 7 is a perspective view of a further modified form of partition, and

Fig. 8 is an elevation of the stud attached directly to the floor and ceiling.

Referring to the drawing by numerals, a pair of channels 10 and 11 are secured in spaced, parallel relation with the webs 12 and 13, respectively, lying in parallel planes. In this form of stud, flanges 14 and 15, respectively, are turned outwardly and connector channels 16 are notched out at the ends to form outstanding lugs 17 which are secured, as by spot welding, to the flanges 14 and 15 so as to rigidly secure channels 10 and 11 in spaced, parallel relation. Connectors 16 may be spaced at intervals desired, such as 1–2 feet in order to impart proper rigidity to the stud. The channels 10 and 11 are preferably constructed of lightweight steel so that they may be easily cut to desired length with regular lathers snippers. If desired, short pieces may be joined to longer pieces to make complete studs, in the manner shown in Fig. 3. For this purpose, the flanges 14 and 15 of the stud are slightly spread apart so as to receive the channels of the short stud length in telescopic relation, the two sections being rigidly secured together in adjusted position by means of tie wires 18.

Extension members 20 may be provided at the tops of the studs, said members comprising channels 21 in U-shaped form having a transverse cross channel 22 at the top. The channels 21 preferably have inturned flanges 23 which are telescopically received by stud flanges 14 and 15 in staggered relation as shown in Fig. 2 in order to impart maximum rigidity to the extension member, the channels 21 being secured to channels 10 and 11 in adjusted position by means of tie wires 24. The bottoms of the studs are received between upturned flanges 25 on base channels 26, webs 27 of said channels 26 being provided with perforations 28 for nailing attachment to the floor of a building, or other building framework. In nailing the channels 26 to concrete floors, stub nails are used and fiber board washers 26a are preferably interposed between the head of the nails and the channel web 27 to prevent breaking off of the nail heads. The channel flanges 25 are provided with spaced perforations 29 at about four inch spacing, so as to receive tie wires 30 to secure the bottoms of the studs to said flanges 25. The channels 26 are

telescoped together in end-to-end position with end holes 29 in registry and secured together by tie wires 31, the flanges 26 of one channel being spread slightly to permit said telescopic action. It will thus be seen that the studs are spaced apart in increments of four inches as desired. The extension members 28 engage between flanges 32 of channels 33 which are identical to channels 26 except that they are secured to the ceiling of a room, or to other suitable building framework. Ordinarily riblath 35 or any other type of expanded metal or plaster base is secured to channels 10 and 11 to receive a plaster coating 36 or other wall facing element, and form a hollow partition. The plaster passing through the meshes of the expanded metal keys with the outstanding stud flanges 14 and 15 so as to impart high rigidity to the finished partition. Heating or air conditioning ducts 37, conduits, pipes, or the like may freely extend through the hollow partition, either in a horizontal or vertical direction. Thus, wash basins or other plumbing fixtures may be arranged on opposite sides of the partition and the connecting pipes will be entirely concealed by the hollow partition. If desired, resilient clips 39 may be attached to one or both of the stud channels 10 and 11 adjacent the connector channels 16, each of said clips having an outstanding, notched, resiliently held arm 40 to which metal lath 41 is attached by means of tie wires 47. An arm 42 on said clip 39 is provided with U-shaped flanges 43 which embrace the channel 10, a bearing lug 44 being provided to engage a connector 16 to firmly and removably secure the clip to the stud. By the use of these resilient clips, a partition having high sound insulating value is produced for use around bathrooms and for certain other partitions.

In the form of partition illustrated in Fig. 6, spaced, parallel channels 48 and 49 are provided with inturned flanges 50 and 51, respectively, said flanges being rigidly secured together by means of connector strips 52 which are spot welded thereto. Metal lath or stucco mesh 54 is secured to the channels 49 by tie wires 55, and exterior stucco 56 is applied to said expanded metal 54 to form the exterior wall face of a building. In order to form the interior wall facing element, perforated plates 58 are provided with inturned flanges 59 which are welded to the webs of channels 48 so that said plates are spaced apart from said webs. The plates 58 are provided with a multiplicity of closely spaced perforations 60 to receive board attaching screws 61. Gypsum, fiber or other natural or composition boards 62 are secured in face abutting relation against the plates 58 and are secured thereto by means of the screws 61. In erecting the partition, the boards are placed against the plates 58 and the board is pierced by a slender punch which "finds" one of the perforations 60. The punch is then withdrawn, and a screw inserted in the punched hole by means of a screwdriver until the board 61 is drawn up tight against the plates 58. Plastic paint is then applied over the exposed inside face of boards 62. As this partition is intended for the exterior walls of buildings, the channels 48 and 49 are made of considerably heavier metal than the channels 10 and 11 so as to be load bearing. The partition shown in Fig. 7 is similar to that shown in Fig. 6 except that plates 58 and boards 62 are applied to both channels of the studs to form a plasterless partition.

In many installations, it will be desirable to eliminate the channel runners 26 (Fig. 8) and secure the studs directly to the floor and ceiling. For this purpose, nail holes 63 are provided in the webs of connector channels 16 for receiving large headed nails 64 driven into the floor 65. At the top of the stud, staples 66 are driven through the web of channel connector 22 into a joist 67 and straddling one of the flanges of said connector. A saving in the cost of channels 26 is thus effected.

I would state in conclusion that while the illustrated examples constitute practical embodiments of my invention, I do not wish to limit myself precisely to these details, since manifestly, the same may be considerably varied without departing from the spirit of the invention as defined in the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a partition construction, upright studs each comprising a pair of metallic channels having webs in spaced, parallel relation and outstanding flanges, means for supporting the tops and bottoms of said studs, a foraminous plaster base sheet secured to the channels of each stud to form a hollow partition, and a plaster coating applied to each base sheet, part of said plaster extending through said sheets and keying with said outstanding channel flanges.

2. In a partition construction, a plurality of studs each comprising a pair of metallic channels having the webs thereof in spaced, parallel relation, metallic supporting channels adjacent the tops and bottoms of said studs, the flanges of said supporting channels having spaced perforations, tie wires passing through said perforations and securing the tops and bottoms of said stud channels to said supporting channels, and wall facing elements secured to said stud channels to form a hollow partition.

3. In a partition structure, upright studs each comprising a pair of metallic channels having the webs thereof in spaced, parallel relation, connector strips for rigidly connecting the flanges of said channels, an extension frame of channel members telescoping with the tops of said stud channels and rigidly secured in adjusted position by wiring, means for securing the bottoms of said stud channels and the tops of said extension frames to a building structure, and wall facing elements secured to said stud channels to form a partition.

4. A building stud comprising a pair of channels in spaced, parallel relation with the flanges of said channels turned outwardly, and cross channels rigidly connecting said stud channels, said cross channels having notched out webs adjacent the ends thereof to provide protruding flanges, said protruding flanges engaging said stud flanges and being welded thereto.

5. A building stud comprising a pair of channels in spaced, parallel relation with the flanges of said channels turned outwardly, and cross members rigidly connecting said channels at spaced intervals, and an extension member slidably associated with one end of said stud and comprising a pair of channels in spaced, parallel relation with the flanges of said second channels turned inwardly and telescoping with the flanges of said stud channels, said extension and stud channels being adapted to be secured together by wiring in the desired adjusted position.

6. A building stud comprising a pair of channels in spaced, parallel relation with the flanges of said channels turned outwardly, and cross

members rigidly connecting said channels, said stud being adapted to support foraminous metallic sheets coated with plaster, the outer edges of said stud flanges being adapted to key with the plaster passing through said foraminous sheets.

7. In a partition construction, floor and ceiling channel runners comprising webs and inturned flanges, said flanges having spaced perforations, said runners being end telescoped and wired together through said perforations, metallic studs having the ends thereof seating in said runners, wiring connections from said studs to the perforations in said runner flanges, and wall facing members secured to said studs.

8. In a building stud, a pair of metallic channels in spaced, parallel relation, said channels having webs extending in parallel planes and flanges extending from the edges of said webs, and connector strips secured to said channels intermediate the ends thereof, said channels being of light metal and being adapted to being cut into short lengths, said short lengths being capable of telescoping between the flanges of other stud lengths by slightly spreading the flanges of said studs and then wiring together the telescoped stud lengths.

9. In a partition construction, upright studs each comprising a pair of metallic channels having webs in spaced, parallel relation and flanges extending from the edges of said webs, and connector strips for rigidly connecting said stud channels at the tops and bottoms of said studs and also intermediate the ends of said channels, the end connector strips being secured directly to floor and ceiling by driven attaching elements.

10. A building stud comprising a pair of strips in spaced, parallel relation, cross members rigidly connecting said strips at spaced intervals, and an extension member slidably associated with one end of said stud and comprising a pair of strips in spaced, parallel relation, said extension strips and stud strips being adapted to be secured together by wiring in the desired adjusted position so as to vary the effective length of said stud.

11. In a partition structure, upright studs each comprising a pair of spaced, parallel strips, connector strips for rigidly connecting said stud strips, an extension frame having spaced, parallel strips engaging said stud strips, wiring connections securing said extension strips to said stud strips in any desired adjusted position, metallic channels attached to a floor and ceiling and having webs in spaced, parallel relation and outstanding perforated flanges, said stud end and extension frame being received between adjacent channel flanges, wired connections securing said extension frame and stud to said perforated flanges, and wall facing elements secured to said studs.

BRUNO E. BALDUF.

46

M. H. CARRICK.

FIREPROOF BUILDING CONSTRUCTION.

APPLICATION FILED NOV. 30, 1914.

1,191,871.

Patented July 18, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

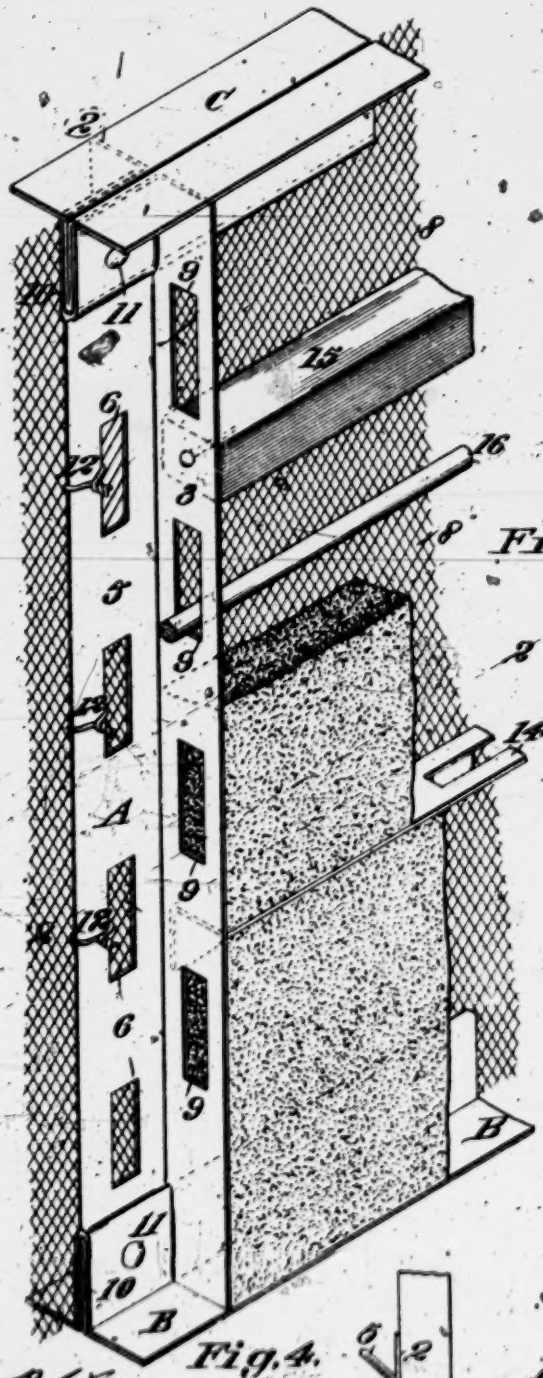


Fig. 2.

Fig. 3.

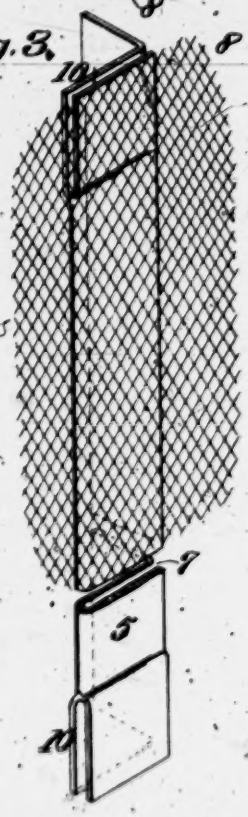
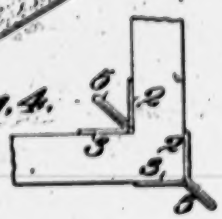


Fig. 4.



WITNESSES:

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47

M. H. CARRICK.

FIREPROOF BUILDING CONSTRUCTION.

APPLICATION FILED NOV. 30, 1914.

1,191,871.

Patented July 18, 1916.

2 SHEETS—SHEET 2.

Fig. 5.

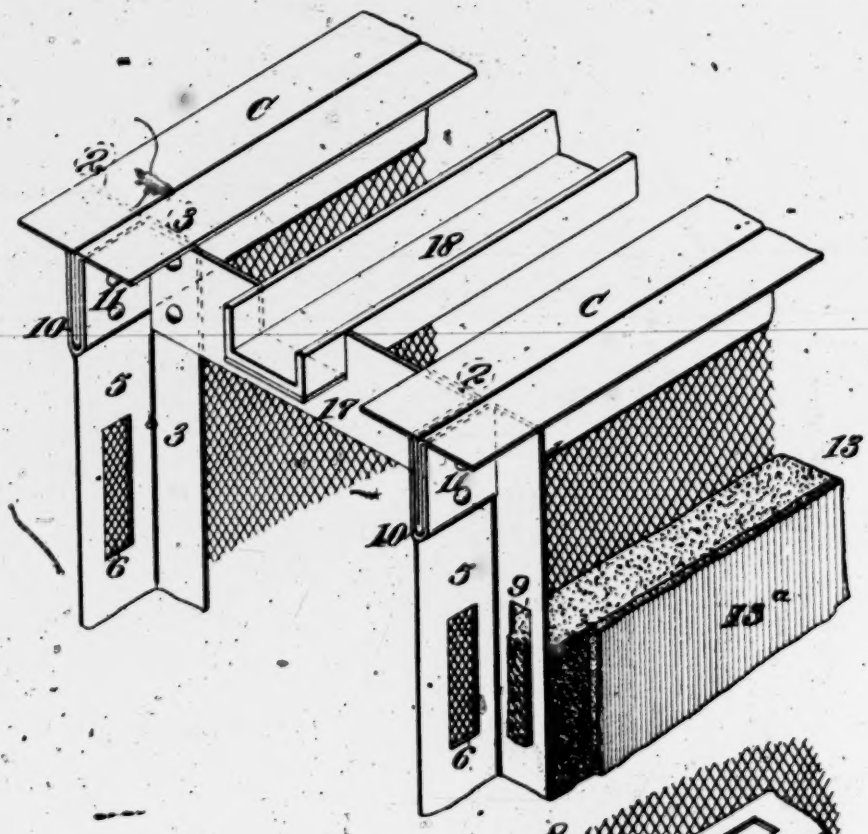
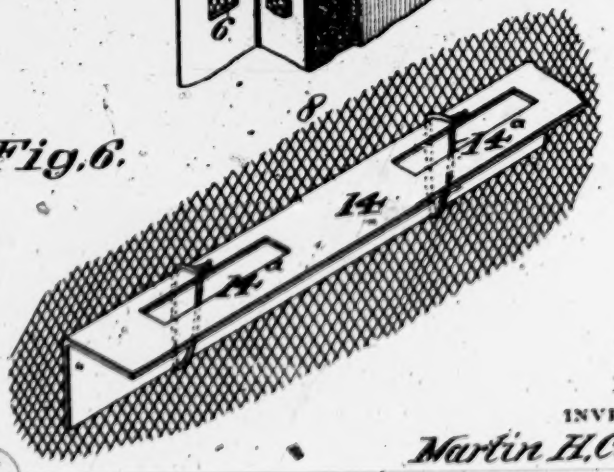


Fig. 6.



WITNESSES:

Charles Tobler

Thos. Lashberg

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Martin H. Carrick

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ATTORNEY

UNITED STATES PATENT OFFICE. 48

MARTIN H. CARRICK, OF SAN FRANCISCO, CALIFORNIA.

FIREPROOF BUILDING CONSTRUCTION.

1,191,871. Specification of Letters Patent. Patented July 18, 1916.

Application filed November 30, 1914. Serial No. 874,713.

To all whom it may concern:

Be it known that I, MARTIN H. CARRICK, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Fireproof Building Construction, of which the following is a specification.

This invention relates to a fireproof structure for partitions, roofs, floors, and the like.

One of the objects of the present invention is to provide a metal bar which is simple and substantial in construction and which can be cheaply manufactured and quickly assembled for various purposes; for instance a series of bars may be assembled to form a partition structure or they may be assembled to form a roof or floor reinforcement, or a single bar may be used as a corner reinforcing strip in plaster or like work.

Another object of the invention is to provide a bar which is not only adapted to form various metal structures, such as are used for partitions, roofs, floors, and the like, but which will also serve as a gage for the cement or plaster applied, thereby insuring a straight surface and even thickness throughout and also preventing cracking of same to any extent.

Further objects will hereinafter appear.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a perspective view showing a single partition structure. Fig. 2 is a cross section of same on line 2—2, Fig. 1. Fig. 3 is a perspective view showing a modified form of bar. Fig. 4 is a plan view showing its application as a corner reinforcing strip. Fig. 5 is a perspective view showing a double wall partition structure. Fig. 6 is a perspective view of the angle strip.

More particularly described, A indicates the metal bar which forms the subject-matter of the present application. The bar is made in suitable lengths and is T-shaped in cross section, being preferably rolled or bent from a single piece of metal. The cross arms of the T-shaped bar are represented by the flanges 2 and 3 while the leg is represented by the side sections 4 and 5, said sections being preferably provided with registering rectangular shaped openings 6. The sections are sufficiently separated from each other to form a space 7 to receive the metal lath 8. The openings 6 are provided as a means for tying on the wire lath and also form keys for the plaster. The flanges 2 and 3 are similarly provided with keys 9 which may also serve as a support for reinforcing bars 16 when these are used or required.

In operation, when erecting a partition structure (see Fig. 1), a foot rail and a head rail B and C, of similar structure to A, are used. These are nailed to the floor and ceiling, or otherwise secured. The uprights A are slotted, as at 10, at each end so as to straddle the head and foot rails and are secured to same by rivets 11, or any other suitable means. The metal lath is then applied by inserting the ends of same into the space formed between sections 4 and 5, and is here secured by squeezing the sections together or tying them with wire 12 through the openings 6.

The structure may be assembled on the floor and then tilted into position where it may be suitably secured, or it may be assembled by first securing the head and foot sections in position and then erecting the upright sections, as described.

With the structure in position and the lath thoroughly secured, the first coat 13 of plaster may be applied on both sides of the lath; the thickness of said coat being regulated by the flanges 2 and 3. These flanges serve as a gage, insuring a straight surface and even thickness of plaster throughout and dividing the plaster up into sections or panels as it prevents checking or cracking to any extent. A solid reinforced partition structure is thus secured. A finishing coat 13^a is then applied which covers up the gage flanges, giving the whole a highly finished straight plastered surface.

The uprights A may be spaced any suitable distance apart to form plaster panels of a corresponding width. These panels may again be divided horizontally by angle strips 14 (see Figs. 1 and 6), which may be tied to the lath, as at 14^a. Nailing strips 15, together with reinforcing rods 16, may also be inserted between the flanges of the uprights where desirable.

Figs. 1 and 2 show a single solid partition structure while Fig. 5 shows a hollow double partition structure. This structure is similar to Fig. 1 only two sections are employed, said sections being spaced apart

and tied together by cross bars 17. The structure may otherwise be reinforced by channel bars 18 or the like. The plaster is in this instance only applied on the exterior surfaces, as shown in Fig. 5, thus forming a hollow sound-proof partition.

Referring to Fig. 4, it will be seen that bars A may also be used as reinforcing strips on inside and outside corners, the flanges 2 and 3 being bent to suit conditions, as shown.

Fig. 3 shows a slight modification of bar A, flange 3 being in this instance eliminated. This type of bar is used sometimes alternately with bar A where it is desired to secure large plaster panels.

From the foregoing description it will be seen that bar A may be used to great advantage in building construction as it not only forms a partition structure and plaster gage, but it may also be used as a corner strip or reinforcement for floor or roof structures, the bars being assembled in practically the same manner in all instances.

The materials and finish of the several parts of the device are such as the experience and judgment of the manufacturer may dictate.

I wish it understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims and that I do not wish to limit myself to the specific design and construction here shown.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. In combination with spaced upper and lower horizontal rails, a bar secured at its ends to said rails, said bar being formed of a sheet of metal doubled upon itself and having its sides extended outwardly, wire netting received in the space between the doubled portion, wire netting engaged exteriorly over a side of the doubled portion, and horizontal bars extending over the wire netting and connected to the outwardly extending sides of the first named bar.

2. In combination with similar spaced upper and lower horizontal rails each of T-shape in cross section, a vertical bar independent of the rails and being doubled upon itself and having slots formed in its doubled edge and at the bar ends to receive the webs of the rails, and flanges extending outwardly from the bars at the sides thereof and engaged at their ends with the horizontal parts of said rails so as to be braced by the latter, said flanges acting as plaster gages and also as a means of support for reinforcing rods in use of the latter.

3. In combination with a bar composed of a metal sheet doubled upon itself and formed with openings located between the doubled and free side edges thereof, a section of wire netting received between the doubled parts of the sheet, a second section of wire netting engaged with one of the doubled parts but exteriorly with said doubled parts so as to lie adjacent the openings, and tie wires passed through both of the aforementioned sections of wire netting and through the openings so as to hold both sections in position.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MARTIN H. CARRICK.

Witnesses:
JOHN H. HERRING,
W. W. HEALEY.

50

M. DAWSON.

FIREPROOF PARTITION.

APPLICATION FILED JULY 26, 1913.

1,102,883.

Patented July 7, 1914.

4 SHEETS—SHEET 1.

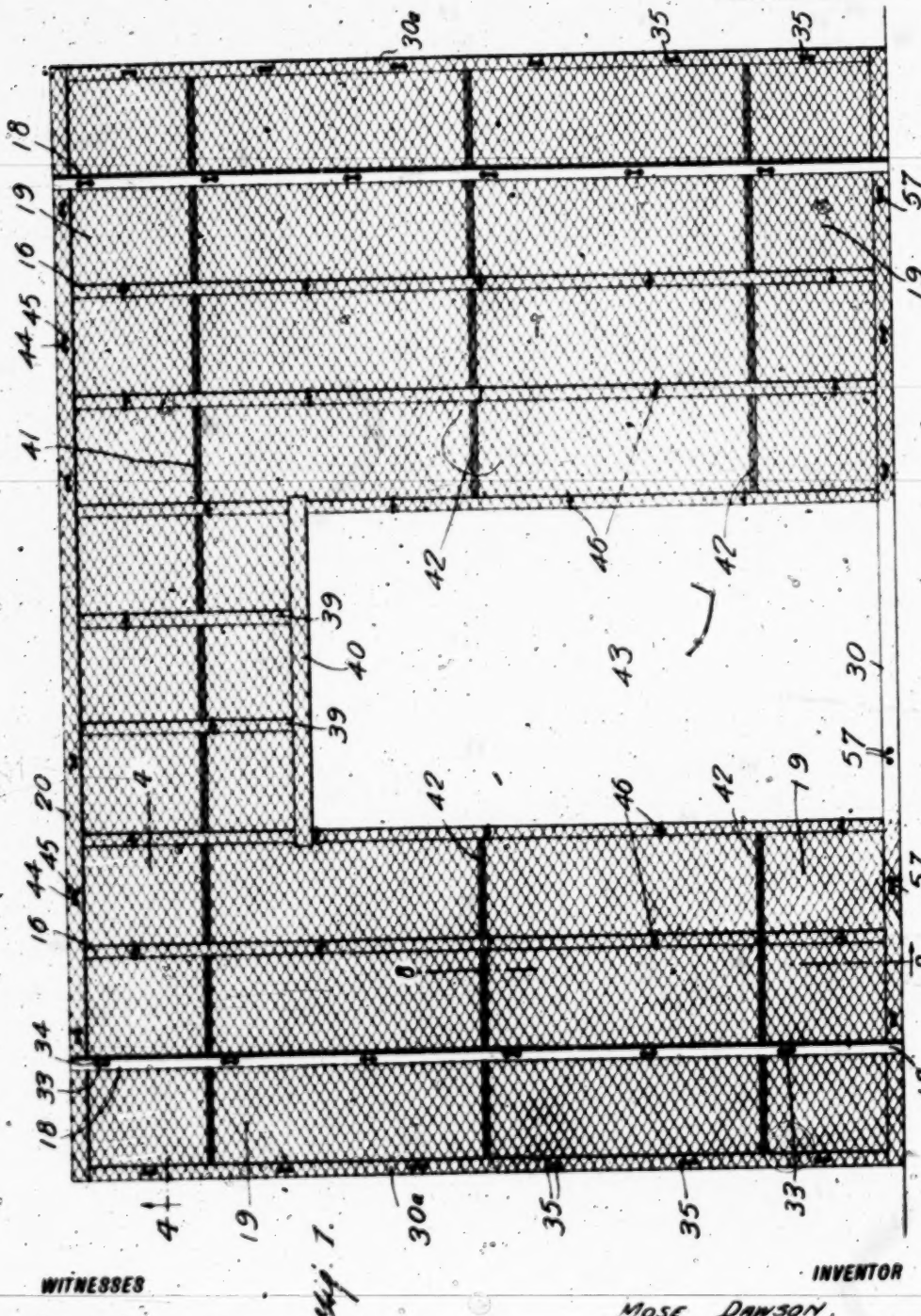

Fig. 1.

WITNESSES

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Walter Harrison

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51

M. DAWSON.

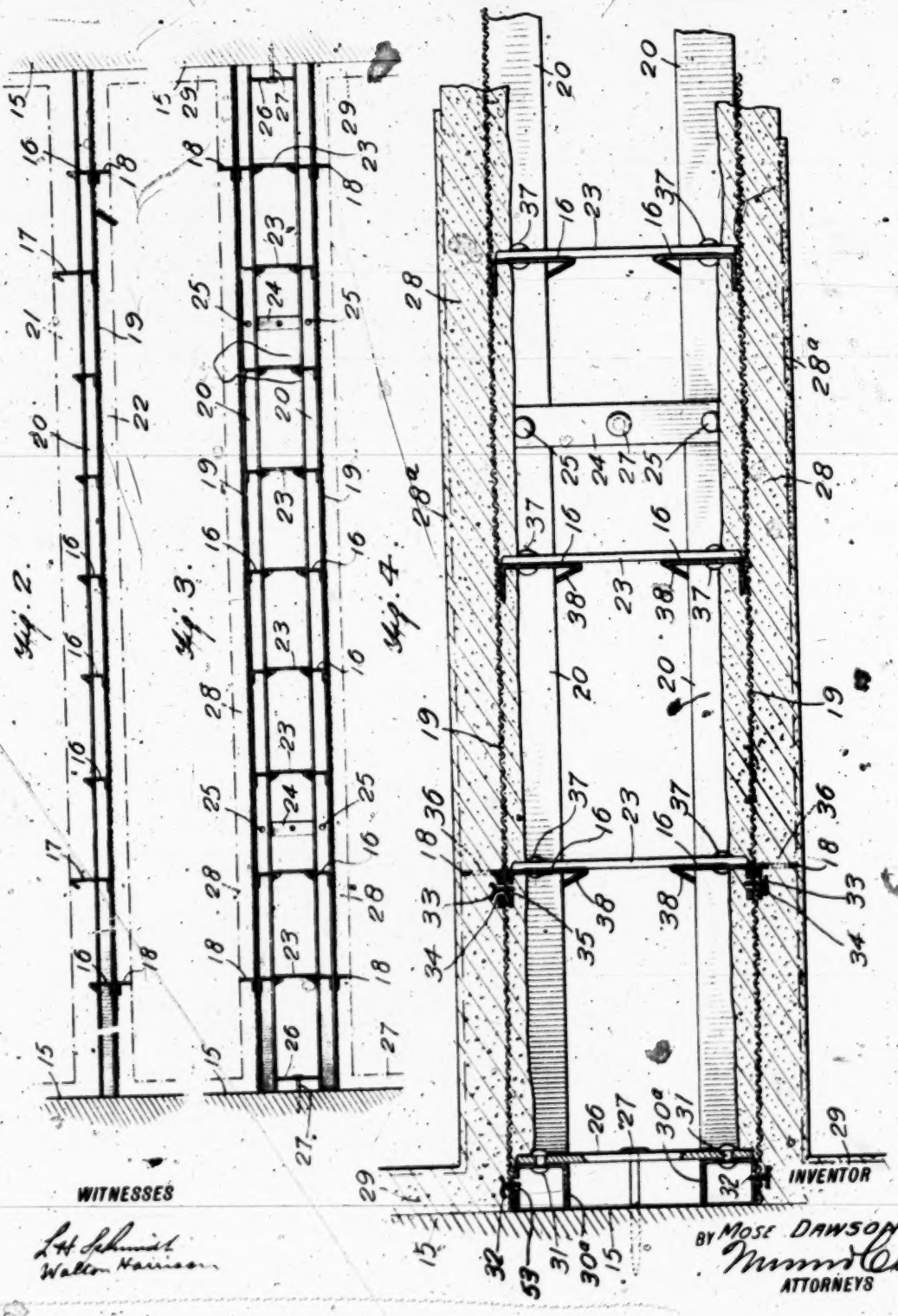
FIREPROOF PARTITION.

APPLICATION FILED JULY 26, 1913.

1,102,883.

Patented July 7, 1914.

4 SHEETS—SHEET 2.



WITNESSES

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Walter Harrison

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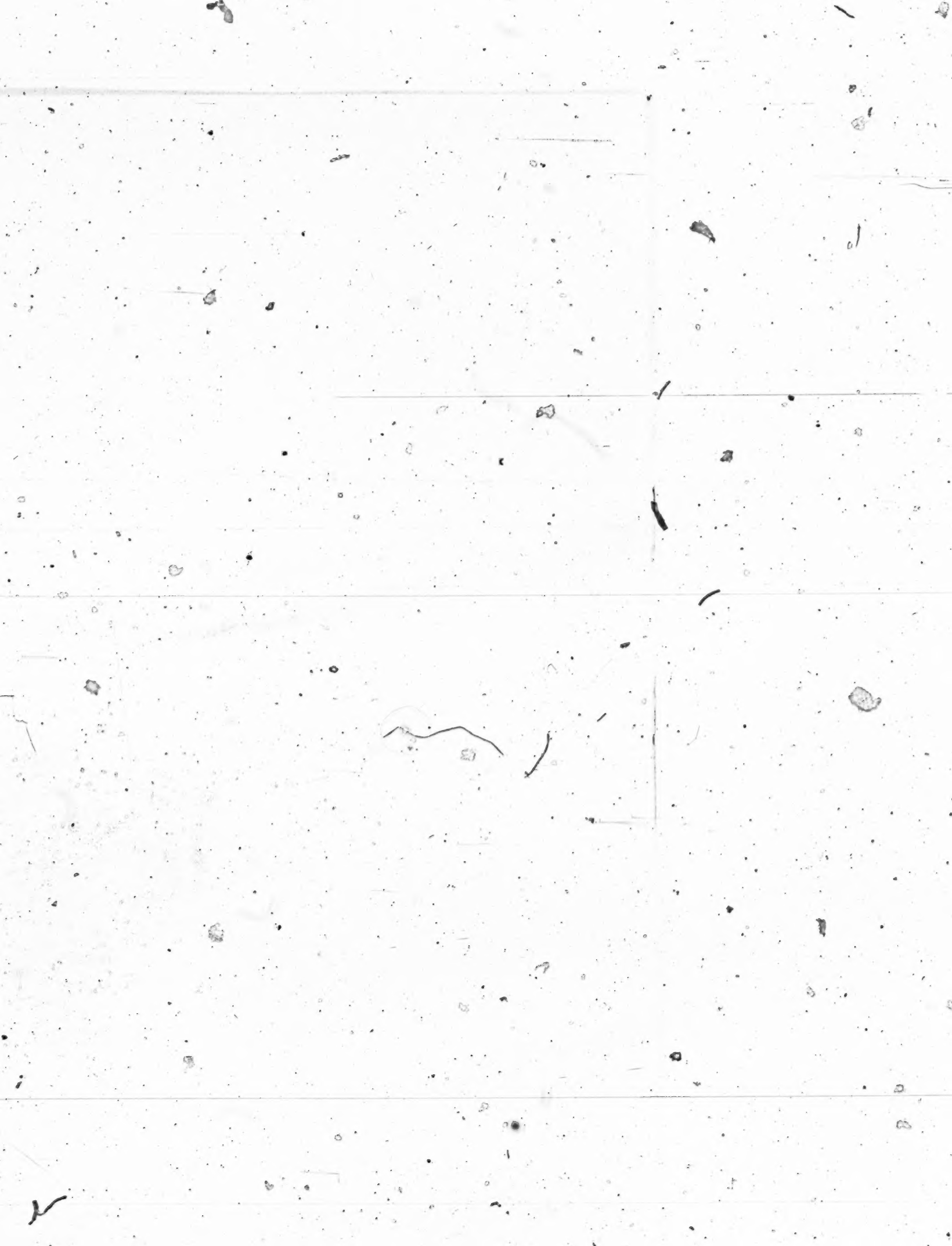
BY Mose Dawson

Munn & Co

ATTORNEYS



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M. DAWSON.

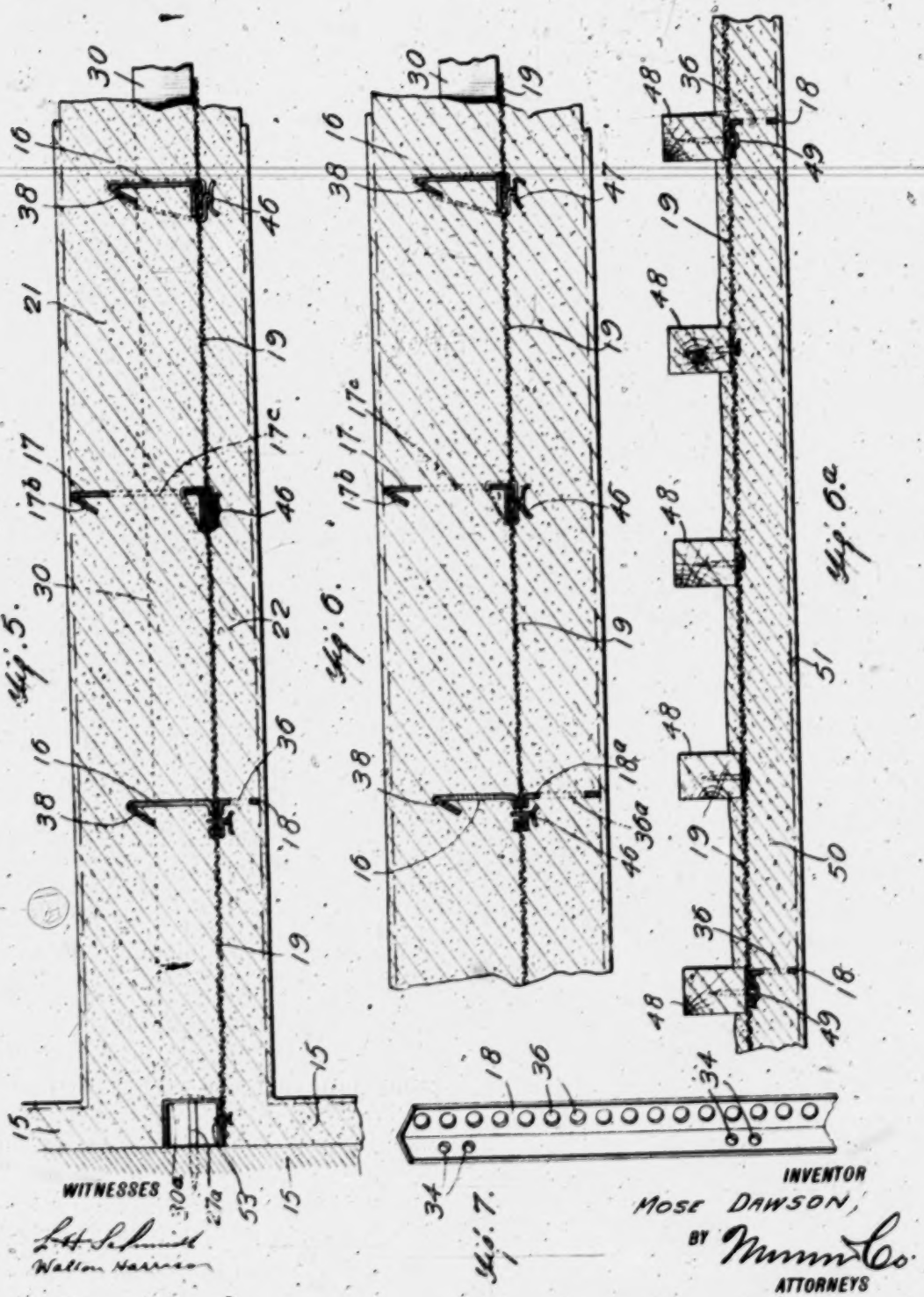
FIREPROOF PARTITION.

APPLICATION FILED JULY 26, 1913.

Patented July 7, 1914.

1,102,883.

4 SHEETS-SHEET 3.



WITNESSES

L. H. Schmidt

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ATTORNEYS

53

M. DAWSON.

FIREPROOF PARTITION.

APPLICATION FILED JULY 26, 1913.

1,102,883.

Patented July 7, 1914.

4 SHEETS—SHEET 4.

Fig. 8.

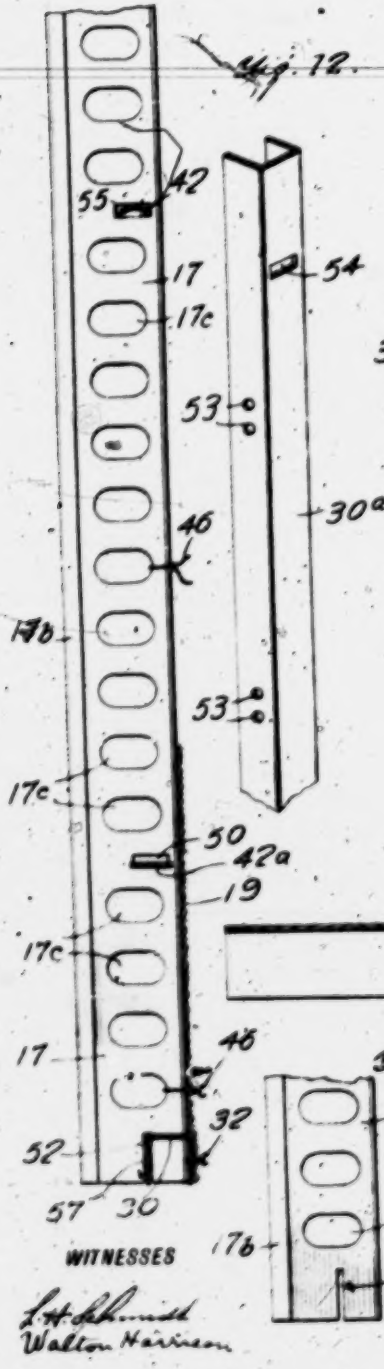


Fig. 12.

Fig. 13.

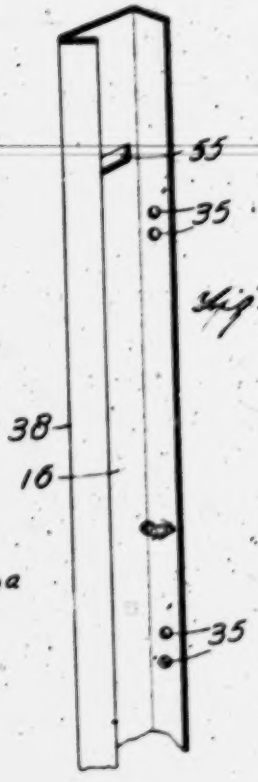


Fig. 14.

Fig. 15.

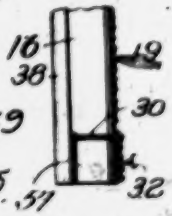


Fig. 11.

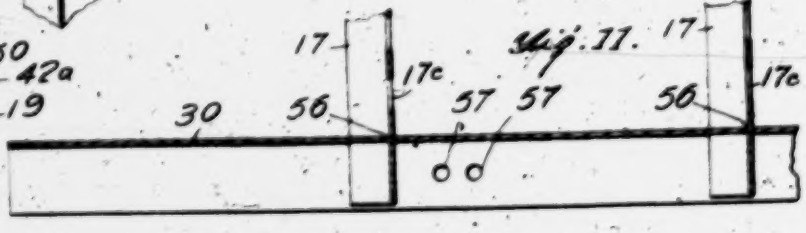
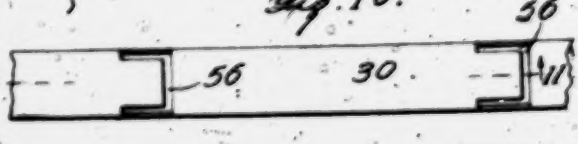


Fig. 9.

Fig. 10.



WITNESSES

L. H. Schmidt

Walton Harrison

INVENTOR

MOSE DAWSON

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE. 54

MOSE DAWSON, OF LOS ANGELES, CALIFORNIA.

FIREPROOF PARTITION.

1,102,883. Specification of Letters Patent. Patented July 7, 1914.

Application filed July 26, 1913. Serial No. 781,385.

To all whom it may concern:

Be it known that I, MOSE DAWSON, a citizen of the United States, and a resident of Los Angeles, in the county of Los Angeles and State of California, have invented a new and Improved Fireproof Partition, of which the following is a specification.

My invention relates to fire proof partitions, my more particular purpose being to produce a device of this character suitable for assuming a large number of different forms, and in which lightness, durability and strength are combined with cheapness, and in which the partition may be rendered comparatively thin, other things being equal.

More particularly stated my invention is a fire proof partition especially adapted for use in crowded office buildings where the space requirements are exceedingly severe so that the partition must be made very thin, without undue sacrifice of other desirable characteristics.

Reference is made to the accompanying drawings forming a part of this specification, and in which like letters indicate like parts.

Figure 1 is a front view of the skeleton frame work for one form of my improved fire proof partition having in this instance a double wall. Fig. 2 is a top plan view of the frame work of another form of my improved partition, which in this instance is provided with a single wall. Fig. 3 is a plan view of the partition shown in Fig. 1. Fig. 4 is a section on the line 4—4 of Fig. 1 looking in the direction of the arrow. Fig. 5 is a fragmentary horizontal section through the form of my invention in which a single wall is used. Fig. 6 is a fragmentary horizontal section through the form using the single wall, but in which the proportions of the filling material are somewhat different from those disclosed in Fig. 5. Fig. 6ª is a fragmentary horizontal section showing another form of my invention. Fig. 7 is a detail showing one of the screeds for supporting mortar and gaging thickness thereof over the metal roof as well as forming the lines to work to for straightening the work. Fig. 8 is a fragmentary view showing partly in section and partly in elevation a screed of a form different from that in Fig. 7. Fig. 9 is a fragmentary elevation showing the lower end of the screed shown in Fig. 8. Fig. 10 is a fragmentary plan view of one of the floor plates. Fig. 11 is a section on the line 11—11 of Fig. 10, looking in the direction of the arrow. Fig. 12 is a detail showing in fragmentary perspective one of the wall plates. Fig. 13 is a fragmentary perspective showing still another form of screed, and Fig. 14 is a detail showing in fragmentary elevation an extension screed, that is, one which may be practically lengthened or shortened, and Fig. 15 is a cross section through one of the floor plates adjacent to one of the screeds, and illustrating the engagement of the latter therewith.

The building walls, that is the permanent walls of the edifice, are shown at 15. At 16 are a number of screeds which are spaced apart and disposed vertically. At 17 are screeds each of somewhat greater width than one of the screeds 16, as may be understood from Fig. 2. At 18 are two screeds of a somewhat different type from the screeds 16—17. At 19 is a metallic lath, that is a reticulated metallic member serving the purposes of a set of laths and connected with all of the screeds and certain other parts as hereinafter described.

A ceiling plate is shown at 20 and is substantially U-shaped in cross section. A body of mortar is filled in at 22 and allowed to set or harden. The back 21 is next filled flush with the screeds. Then after all the mortar has set, the finish coat is put over the face of the mortar and adjacent edges of the screeds.

Where the wall is to be made double, as indicated, in Figs. 3 and 4, the filling 22 of mortar is omitted and two single walls are virtually formed, these single walls being spaced apart by tie plates 23—24. The aggregate thickness of the double wall thus formed may be controlled within reasonable limits by the length of the tie plates 23—24 thus employed. These tie plates are held in position by fastenings 25—26, the latter in turn being held in position by nails 27 or other appropriate fastenings. The fillings of the double wall are shown at 28—28 and may be provided with facings 28ª—28ª for the purpose of improving the appearance of the partition. The fillings 28 may be extended along the permanent wall 15 of the building as indicated at 29 in Fig. 4. At the bottom of the partition, I employ floor plates 30 each having in cross-section substantially the form of an inverted U. I also employ wall plates 30ª at the vertical edges of the partition, the wall plates 30ª carrying

the brackets 26 which are secured thereto by rivets 31. Similarly the tie plates 24 are connected with the ceiling plates 20 by rivets 25, as may be understood from Fig. 4. The floor plates 30 are connected in the same manner.

The wall plates 30ª are provided with holes 53 (see left of Fig. 4) for facilitating the application of tie wires 32 in order to hold the metal lath 19 in position. The screeds 18 and 16 are provided with holes 34—35 for accommodating tie wires 33 which extend through these holes and through the metal lath 19 in order to support the latter. The screeds 18 are provided with holes 36 which not only serve as anchorages for the filling 28, but also render this filling practically continuous.

Rivets 37 connect the tie plates with the screeds 16. The screeds 16 are provided with reverting edges 38 for holding other parts in position as hereinafter described.

For some purposes I use short screeds 39, as shown in Fig. 1, these screeds aside from their length, being of substantially the same form as the screeds 16. At the bottoms of the short screeds 39 I use a door plate 40. At 41—42 are tie strips for the purpose of strengthening the partition. These tie strips are of especial service around a door such as 43 in Fig. 1.

Tie wires are shown at 44 and are used for holding the metal lath upon the ceiling plate 20, which for this purpose is provided with holes 45. Tie wires 46 are also used for holding the metal laths upon the screeds 16. In some instances tie wires completely encircle the screeds 16 as shown at 47, right of Fig. 6. In other instances the tie wires 46 are merely passed through the holes 34 and 25 as above explained with reference to Fig. 4.

In the form shown in Fig. 6ª I apply the screeds 18 to a wall or a group of posts 48 already in position. For this purpose the screeds 18 and the metal lath 19 are placed against the posts and are held in position by nails 49. The filling 50 is next placed in position and a facing 51 is then formed upon the filling 50.

Each screed 16—17 is provided at its end with a slot 52 of the form shown in Figs. 8 and 9, for facilitating the mounting of the screed in position. Each wall plate 30ª is provided with holes 53 to facilitate the application of the tie wires 46. Each wall plate 30ª is also provided with a horizontally disposed slot 54. The screeds 16—17 are each provided with horizontally disposed slots 55 for holding the binding strip 42. This binding strip when first placed in position has an arcuate form in cross-section, as indicated in the upper portion of Fig. 8. When, however, the binding strip is flattened out by the aid of a hammer or mallet as appears at 42ª in Fig. 8, the binding strip, thus flattened is clenched in position and firmly holds itself in position relatively to the screeds through which it extends.

Each ceiling plate 20 and floor plate 30 is provided with U-shaped slots 56, as indicated in Fig. 10, these slots being adapted to facilitate the connection of lower ends of the screeds 16—17, as will be understood from the lower portion of Fig. 8. Each floor plate and ceiling plate is further provided with holes 57 for facilitating the application of tie wires 32 to hold the metal lath in position, as indicated at the bottom of Fig. 8.

In Fig. 14 I show an extensible screed. This screed is made of a plurality of sections 57ª, 58, 59, fitted telescopically together and severally provided with reverting portions 60, 61, 62, and with base portions 63, 64, 65. By aid of rivets 66 the telescopic sections are secured firmly together, after which the reverting portions 61 are bent or crimped at 67, thus further securing and steadying the composite screed thus formed.

I find it convenient, in building the partition above described, to place the ceiling plate 20 and the floor plate 30 in predetermined arbitrary positions indicated by measurement and preferably by bringing each of them to a line marked on the floor or ceiling. By doing this and applying a temporary prop, serving as a gage, to locate the middle or intervening portion of the partition, or rather in building the middle or intervening portion of the partition against the prop just mentioned, the partition as a whole is rendered perfectly true and accurate. The temporary top, however, is not necessary unless the partition exceeds a height of 12 or 14 feet.

In applying the mortar it is a good idea to first place the filling 22 in position, bringing the mortar to the face of the screeds on the thin side first. Then after the mortar has set the heavy side 21 may be filled, to the face of the screeds.

Where the wall is to be single, as indicated in Fig. 5, I preferably apply the filling 21 of mortar so as to bring the outer surface of the same flush with the outermost portions of the screeds 17 and then apply the facing so as to cover up the screeds and hide the same. The thickness of the single wall may be controlled by using screeds 16—17 of appropriate width for the purpose, or by using screeds 18 which may be narrow or wide according to the thickness desired.

Where the screeds are employed as shown in Fig. 6ª the width of the screeds determines virtually the thickness of the wall.

Where double walls are used, as indicated in Figs. 3 and 4, the thickness of each of the wall members may be made always the same if desired, the aggregate thickness of the wall being controlled by the distance the wall members are spaced apart, in other words, by the length of the tie plates used.

The U form of the slots 56 enables the ceiling plates and tie plates to be used interchangeably and also to be used in a variety of different relations. This form for the slot enables the screeds 16—17 to be readily connected with the ceiling plates or floor plates and that too independent of whether said plates be for the one or the other of their two interchangeable uses.

I do not limit myself to the precise construction shown as variations may be made therein without departing from the spirit of my invention the scope of which is commensurate with my claims.

I claim:

1. A fire proof partition comprising floor plates and ceiling plates, a plurality of screeds connected with a floor plate and a ceiling plate, each of said screeds being provided with a longitudinal reverting edge engaging the adjacent side surface of the floor plate and the ceiling plate, a plurality of tie plates each extending from one of said screeds to another, and a metallic lath mounted upon said screeds, and supported thereby.

2. A device of the character described, comprising a ceiling plate, a screed connected with the ceiling plate, said screed being substantially L-shaped in cross section and having a longitudinal reverting edge along one angular portion thereof engaging the adjacent side of the ceiling plate, a tie plate engaging said screed, and a metallic lath connected with the other angular portion of the screed, substantially as described.

3. In a fire proof partition, the combination of a pair of ceiling plates each having a substantial U-form in cross section, a tie plate extending from one of said ceiling plates to another, means for securing said tie plate to said ceiling plates, screeds having longitudinal reverting edges engaging the inner side surfaces of said ceiling plates, and metal laths mounted upon said screeds.

4. In a fire proof partition, the combination of a screed substantially L-shaped in cross section and one angular portion of which has a free angular reverting edge extending longitudinally therealong for engagement with a floor or ceiling plate, a metallic lath engaging the other angular portion of the screed, a second screed, and means for connecting the said second screed with said lath and with the first mentioned screed.

5. In a fire proof partition, the combination of a pair of ceiling plates each having a substantial U-form in cross section, a tie plate extending from one of said ceiling plates to another, for connecting the ceiling plates, screeds having inner longitudinal reverting edges engaging the inner side surfaces of the ceiling plates, and having outer L-shaped portions, and metal laths mounted upon the L-shaped portions of the screeds.

6. In a fire proof partition, the combination of a pair of ceiling plates each having a substantial U-form in cross section, a tie plate extending from one of the ceiling plates to another for connecting the same, screeds having inner longitudinal reverting edges engaging the inner side surfaces of the ceiling plates and having outer L-shaped portions, tie plates connecting the screeds, and metal laths mounted upon the L-shaped portions of the screeds.

7. A fire proof partition comprising floor plates and ceiling plates having angular slots, screeds substantially L-shaped in cross section, each having slotted ends for engagement within the slots of the floor and ceiling plates and a longitudinal reverting edge along one portion which engages the adjacent side surfaces of the floor and ceiling plates, and a metallic lath mounted upon the other portion of the screeds.

8. In a fire proof partition, a screed substantially L-shaped in cross section and one angular portion of which has a free angular reverting edge extending longitudinally therealong for engagement with a floor or ceiling plate, and a metallic lath secured to the other angular portion of the screed, all for the purpose described.

MOSE DAWSON.

Witnesses:
VIOLA DAWSON,
W. N. CRANDALL.

57 (No Model.)

W. F. KEARNS.

PARTITION FRAME.

No. 603,402. Patented May 3, 1898.

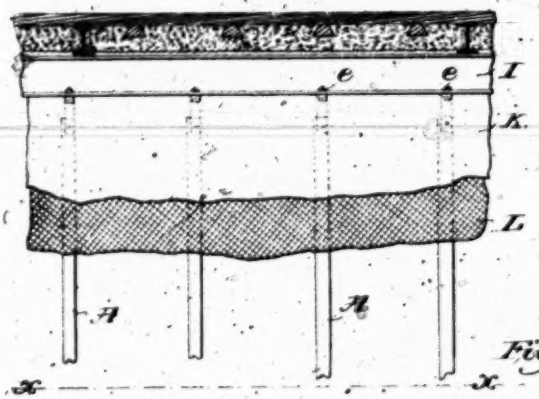


Fig. 1.

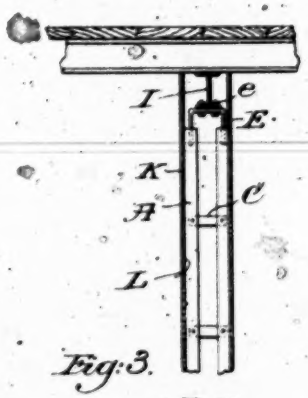
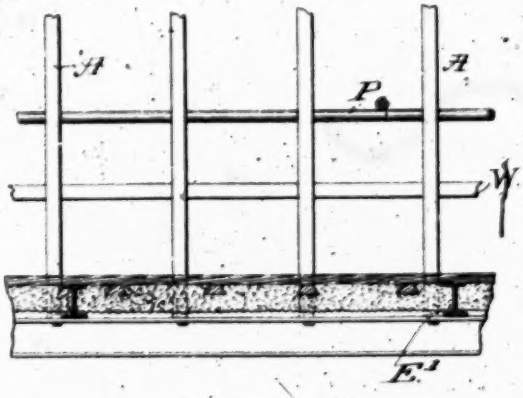
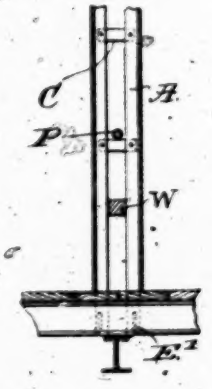


Fig. 3.





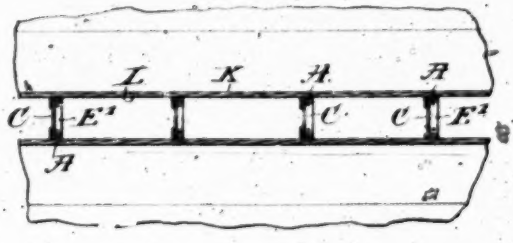


Fig. 2.

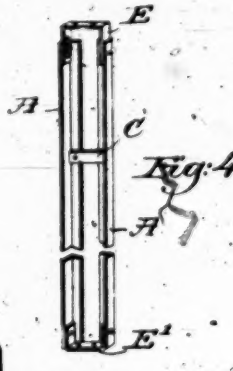
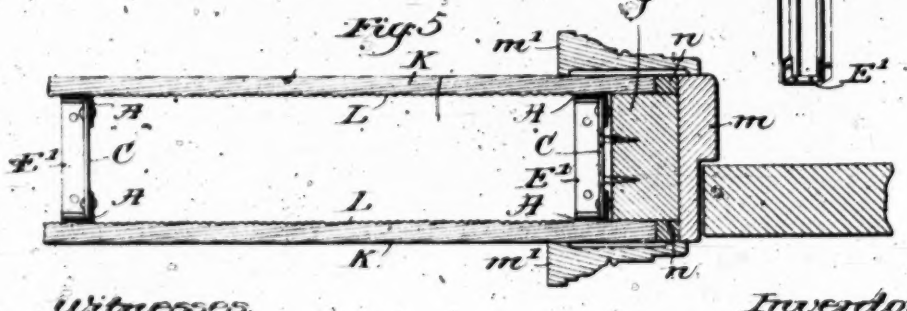


Fig. 4.

Fig. 5.



Witnesses.
Chas. F. Groll.
Grace M. Shay.

Inventor:
William F. Kearns
by Lange & Roberts
Attorneys

UNITED STATES PATENT OFFICE. 58

WILLIAM F. KEARNS, OF BOSTON, MASSACHUSETTS.

PARTITION-FRAME.

SPECIFICATION forming part of Letters Patent No. 603,402, dated May 3, 1898.

Application filed October 29, 1897. Serial No. 656,754. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. KEARNS, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Partition-Frame, of which the following is a specification.

The object of the within-described invention is to provide a framework for hollow fireproof partitions, which framework shall be easy to manufacture and set up in place, shall lend itself readily to the attachment of all usual fixtures which exist in and about a house-partition, and shall serve as a firm though light support for the metallic lathing now in demand for fireproof work.

The partition-frame herein described is especially adapted to the lighter forms of fireproof construction, such as are found in apartment-houses and hotels.

The framework consists of a new and improved upright adapted to be used in place of wooden joists or heavy channel or angle irons.

In the drawings, which are referred to for clearness in description, Figure 1 represents a side view of a partition-frame constructed of several such improved uprights. Fig. 2 is a plan view of the structure shown in Fig. 1 across the broken section *x x*. Fig. 3 is an end view of the partition shown in Fig. 1, disclosing one of the uprights. Fig. 4 is a perspective drawing of one of the uprights shown in Figs. 1 to 3. Fig. 5 is a detail showing in plan view the manner in which sundry fixtures may be secured to the improved frame.

Each upright consists of side pieces A, which are preferably strips of angle or channel iron which combine lightness with strength. The side pieces A are separated and secured together by cross-pieces C, which may be very simply and cheaply constructed of band-iron. These cross-pieces C are riveted or otherwise securely fastened to the side pieces and should, as a matter of good construction, be cut square, so as to abut against the flanges of the angle-iron side strips A. By making the side pieces C fit snugly in this manner the entire upright will be stiff and resist what may be called a "parallel-rule" movement.

The length of the cross-pieces C will be determined by the thickness of the partition to be erected. It is desirable to have all such building materials as the uprights in question come to the builder's hand as nearly as possible complete, so that the workmen employed need waste no time in fitting them in place. If such materials are furnished of a fixed length, unavoidable variations in the frame of the building will make some uprights too short and others too long, although the building plans are closely followed. Then of course alteration and fitting would be called for and the time required for putting up the partition be indefinitely lengthened. In order to avoid such difficulty, the improved upright for partition-frames is provided with an adjustable end piece which shall have a range of movement or adjustment sufficiently great to correct all probable variations in the space to be filled.

At one end of the upright—the upper end by obvious preference—there is provided a strap E, whose legs are spaced just wide enough apart to fit between the flanges of the side strips A. The strap E is made adjustable on the side strips, preferably by a slot-and-pin connection, the pin in each case consisting of a screw-bolt provided with a nut for binding the parts together.

The plan contemplated by which a builder's requisition for improved upright partition-frames can be satisfactorily filled is as follows: If the space calls for a ten-foot frame, the side strips A will be cut a little short of this length—say half an inch. No probable variation in the space between floor-beams will exceed this. The end straps E are made ready to fit the uprights and have sufficient play to enable them to take up the half-inch space or more if occasion require. Tapped screw-holes are then bored in the floor-beams I and the straps E secured with screws or bolts E E therein. The lower strap E', which binds the side strips at the bottom, can be suitably secured to the floor or floor-beam.

When a suitable number of uprights are in position, the partition-frame made thereby is seen to possess marked and improved advantages. Gas, steam, or water pipes or wire-conduits can be quickly secured in place, resting on the cross-pieces C, as shown at P, Figs. 1

and 3. The necessary wooden frames for attaching base-boards, &c., can be placed within the frame, as at W. When the attachment of wire-cloth or other metallic lathing is called for, the small size of the side strips A and the open construction of the frame will enable one man to fish the binding-wires through the lathing and around the frame where two have been employed. A partition twelve inches thick will not be appreciably more costly than one four inches thick, the extra length of cross-pieces C and straps E E′ being the only change required in enlarging the frame. The quickness and ease with which such a frame can be set up and its thorough convenience for further building operations, in addition to its combined lightness and strength, commend it to the building contractor.

Fig. 5 illustrates the manner in which woodwork can be secured to the partition-frame with little labor and perfect security. A joist J, which is to serve as a door-casing, is secured by screws passing through the cross-bars C of an end frame. This joist serves for a base whereon the corner-pieces *n n* are fastened and to which the door-jamb *m* and moldings *m′ m′* are secured.

The strap E is shown as a single U-shaped piece spanning the width of the frame. If at any place the floor or floor-beam should present an irregular surface, the strap E can be cut in two in the middle, so that one leg can be moved higher than the other. In wide partitions the strap E may be made in two pieces, each independent of the other.

The metallic lathing L and plastering K are shown in Figs. 1, 2, 3, and 5. The floors, concrete arching, &c., are illustrated in the drawings, but not lettered, as they are exhibited merely to indicate the manner in which the improved partition-frame is to be set up.

What I claim, and desire to secure by Letters Patent, is as follows:

A partition-frame comprising in its construction parallel angle-iron side strips separated and connected by cross-pieces and a U-shaped strap with slot-and-pin connection with the side strips constituting an adjustable end piece, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM F. KEARNS.

Witnesses:
A. B. PUTNAM,
JAS. A. CUMMINGS.

60

H. HILL.

PARTITION CONSTRUCTION FOR FIREPROOF BUILDINGS.

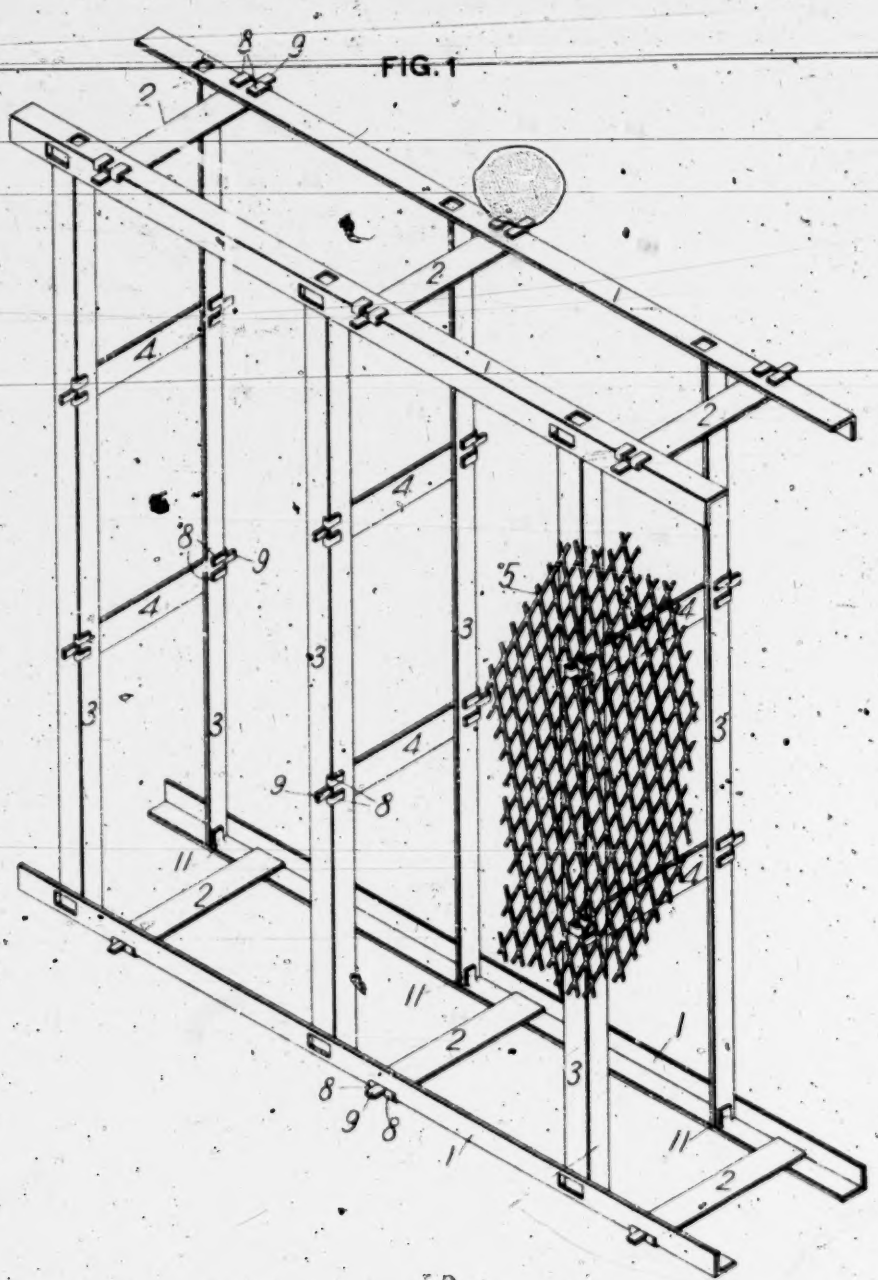
APPLICATION FILED AUG. 9, 1909.

975,426.

Patented Nov. 15, 1910.

3 SHEETS-SHEET 1.

FIG. 1



WITNESSES

Chas. Sederman

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Attorney

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PARTITION CONSTRUCTION FOR FIREPROOF BUILDINGS.

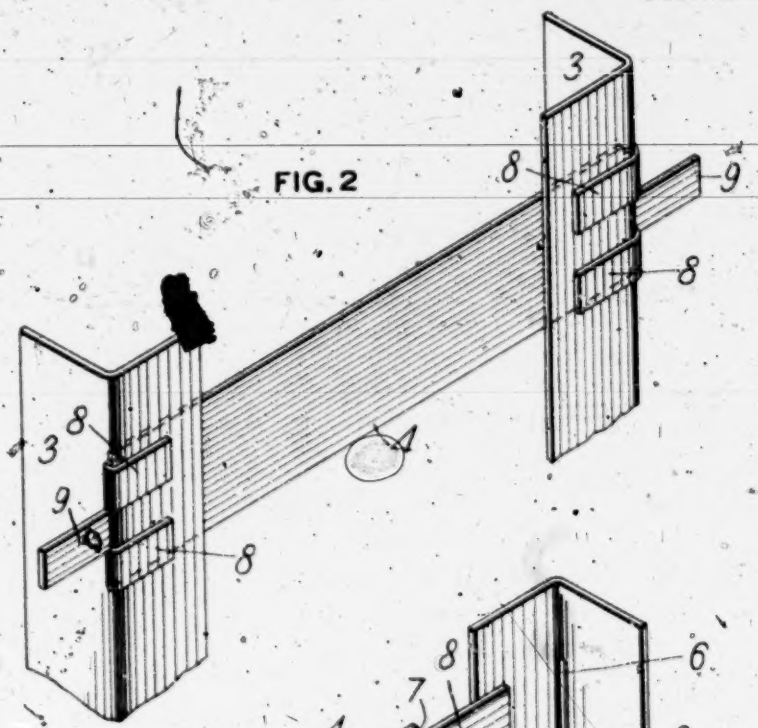
APPLICATION FILED AUG. 9, 1909.

975,426.

Patented Nov. 15, 1910.

2 SHEETS—SHEET 2.

FIG. 2



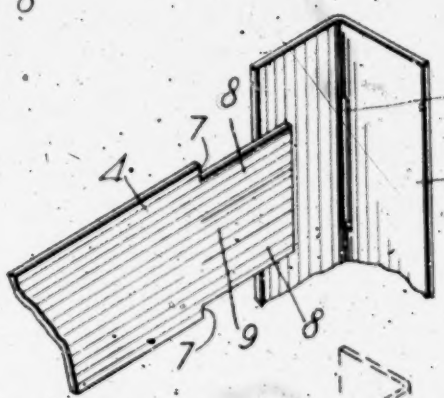
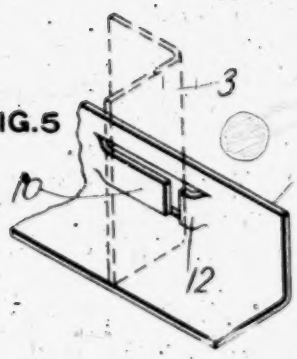


FIG. 3

FIG. 5



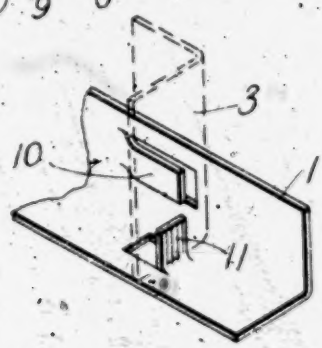


FIG. 4

WITNESSES

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Estelle M. Johnson

INVENTOR

Hermann Hill

By Fredk. H. Winter

Attorney.

UNITED STATES PATENT OFFICE.

HERMANN HILL, OF WARWOOD, WEST VIRGINIA, ASSIGNOR TO STEEL FIREPROOFING COMPANY, OF WHEELING, WEST VIRGINIA, A CORPORATION OF WEST VIRGINIA.

PARTITION CONSTRUCTION FOR FIREPROOF BUILDINGS.

975,426. Specification of Letters Patent. Patented Nov. 15, 1910.

Application filed August 9, 1909. Serial No. 511,913.

To all whom it may concern:

Be it known that I, HERMANN HILL, a resident of Warwood, in the county of Ohio and State of West Virginia, have invented a new and useful Improvement in Partition Construction for Fireproof Buildings, of which the following is a specification.

This invention relates to partition and wall constructions for fire proof buildings and other structures.

The object of the invention is to provide a steel construction for the purpose stated which requires no rivets or other separate fastening means in the assembling and erection thereof, which permits the wiring and piping to be freely and readily extended therethrough, which requires less metal and hence is cheaper while being just as strong as prior constructions for a similar purpose, and which is provided with strong means for the easy and secure attachment of the lathing thereto.

The invention comprises the construction and arrangement of parts hereinafter described and claimed.

In the accompanying drawings Figure 1 is a general perspective view of a portion of a partition construction embodying the invention; Fig. 2 is a similar view of a portion of a stud on an enlarged scale; Fig. 3 is a detail perspective view of a portion of one of the stud angles and the end of one of the lattice members prior to assembling; Fig. 4 is a similar view illustrating the manner of connecting the stud to the floor string; and Fig. 5 is a similar view showing a modification.

The invention is shown in the drawings as embodied in a partition construction. As shown the partition comprises floor and ceiling strings comprising angle members 1 cross connected by lattice members 2, and studs comprising angle members 3 cross connected by lattice members 4. The metal lath is shown at 5.

The angle members 1 and 3 may be either small rolled angle bars or formed from strips of sheet or thin plate metal, such as steel, bent into angle form. The latter construction is preferred since light gage metal can be used, so saving in stock and cost. The lattice members 2 and 4 preferably are strips of sheet or thin plate metal, such as steel. One leg of each angle member 1 and 3 is provided with slots 6, preferably extending longitudinally of the angle member and located adjacent to the other leg of said member for receiving the end of a cross or lattice member 2 or 4. Each end of the cross or lattice member is provided with shoulders 7 to abut against the angle member and prevent further passage of the cross or lattice member through the slot 6. The projecting end of the lattice member is slit longitudinally to form a plurality of tongues, three such tongues being shown, to-wit, two side tongues 8 and an intermediate tongue 9. In assembling or erecting, the slit ends of the cross members are passed through the slots 6 until the shoulders 7 abut against the inner faces of the slotted legs of the angle members, and one or more of the tongues are then bent back upon themselves, or otherwise mutilated or deformed to hold the cross members from being withdrawn from the slots 6. The drawings show the two side tongues 8 bent back parallel to the plane of the cross strips 2 and 4, but obviously a single tongue so bent would answer the purpose. One of the tongues, such as the intermediate tongue 9, is left projecting outwardly for the attachment of the lathing to the partition.

The studs are secured to the floor and ceiling strings by providing the vertical legs or flanges of the string angles with punched out tongues 10 bent out of the planes of said legs or flanges and arranged to embrace the outside legs or flanges of the stud angles, as shown in Fig. 4. To prevent the stud angles from disengagement from the tongues 10 by movement longitudinally of the strings, the latter are provided with projections in position to contact with the stud angles and prevent such movement. As shown in the drawings these projections are punched out of the string angles, Fig. 4 showing a tongue 11 punched out of the horizontal leg of the string angle and bent normal thereto, while Fig. 5 shows a tongue 12 punched out of the vertical leg of the string angle. The construction described permits the studs to be disengaged from the strings only by moving the studs normal to the strings, and this movement obviously is

impossible when the partition is in place between floor and ceiling structures. In erecting, the strings and studs can be assembled in horizontal position and the structure as a whole then raised to vertical position between floor and ceiling.

The lath 5 is secured to the partition by forcing the meshes or openings therein over the projecting tongues 9 on the stud and string lattice members, and then bending said tongues against the side faces of the string and stud angles and thereby clamping the lath in place. The lath is thereby secured not only to the studs but the edges are also secured at the floor and ceiling to the strings. The tongues 9 projecting from the studs stand edgewise in vertical planes and hence offer maximum strength in supporting the lath.

The partition construction described comprises only four standard parts, viz: the string angles 1, the stud angles 3, the string cross member 2 and the stud cross member 4. These are fabricated at the factory and can be assembled at the place of erection by unskilled labor and by the use of very simple tools. The lath may be of any form of metal lath and can be very readily secured to the studs and strings. There are no separate fastening means to be applied, and which would not only add to the cost and labor but would be liable to become lost or misplaced. The lattice construction forms an open partition so that wires and pipes can be readily run in all directions. It also results in a material reduction in stock or tonnage over prior construction while being just as strong and very much less costly. The fastening means for the lath is arranged to give maximum strength in supporting the lath, and enables very light gage metal to be employed.

What I claim is:

1. A metallic partition construction comprising floor strings, ceiling strings, and studs connecting the floor and ceiling strings, said strings and studs each comprising a pair of longitudinal side members and cross connecting members extending transversely between the longitudinal members, said longitudinal members and cross connecting members of said strings and studs being interlocked by means of projections integral with said parts.

2. A metallic building construction comprising floor strings, ceiling strings, and studs connecting the floor and ceiling strings, said strings and studs each comprising a pair of side members and cross connecting lattice members, said parts being interlocked by means of projections integral therewith and being provided with lateral projecting portions for the attachment of the lath.

3. A metallic building construction comprising studs formed of flanged vertical members and cross-connecting members, and strings having vertical webs provided with tongues extending longitudinally of the said vertical webs and offset and spaced therefrom and arranged to embrace a flange on the vertical stud members.

4. A metallic building construction comprising metal studs provided with side flanges and a string having vertical flanges provided with tongues extending longitudinally of said vertical flanges and offset and spaced therefrom and arranged to embrace a flange of the studs, and having projections for preventing movement of the studs longitudinally of the strings.

5. A metallic building construction comprising metal studs of lattice construction having side flanges, and a string having vertical flanges provided with tongues extending longitudinally of said vertical flanges and offset and spaced therefrom and arranged to embrace the flanges of the studs, and projections integral with said strings and arranged to prevent movement of the studs longitudinally of the strings.

6. A lattice metallic building element, comprising a pair of longitudinal flanged members provided with slots through their parallel flanges, and separate cross connecting members having shouldered ends provided with a plurality of tongues projecting through the slots in the flanged members, one of said tongues being deformed to secure the members together and another of said tongues projecting beyond the flanged members.

7. A metallic stud comprising two flanged vertical members provided with slots arranged longitudinally thereof, and cross connecting members having ends provided with a plurality of tongues extending through the slots in the vertical members, one of said tongues at each end being deformed to connect the cross and vertical members and another tongue at each end projecting outwardly and serving as a means for securing lath to the stud.

8. A metallic stud comprising vertical angle members provided with slots arranged longitudinally thereof, and cross members of flat strips provided with shoulders near the ends and a plurality of tongues projecting beyond said shoulders and extending through the slots in the vertical members, a tongue at each end being deformed to unite the vertical and cross members and another tongue projecting outwardly and serving as a means for securing the lathing.

9. A metallic wall construction comprising floor strings, ceiling strings, and studs connecting the floor and ceiling strings, said

studs and strings each comprising longitudinal members provided with openings therethrough and connecting members, said connecting members having end portions projecting through the openings in the longitudinal members and projecting beyond the same for securing lathing.

In testimony whereof, I have hereunto set my hand.

HERMANN HILL.

Witnesses:
R. E. BYRUM,
H. E. MARKS.

65 (No Model.)

A. McCARTNEY.

FIREPROOF PARTITION FOR BUILDINGS.

No. 552,539. Patented Jan. 7, 1896.

FIG 1.

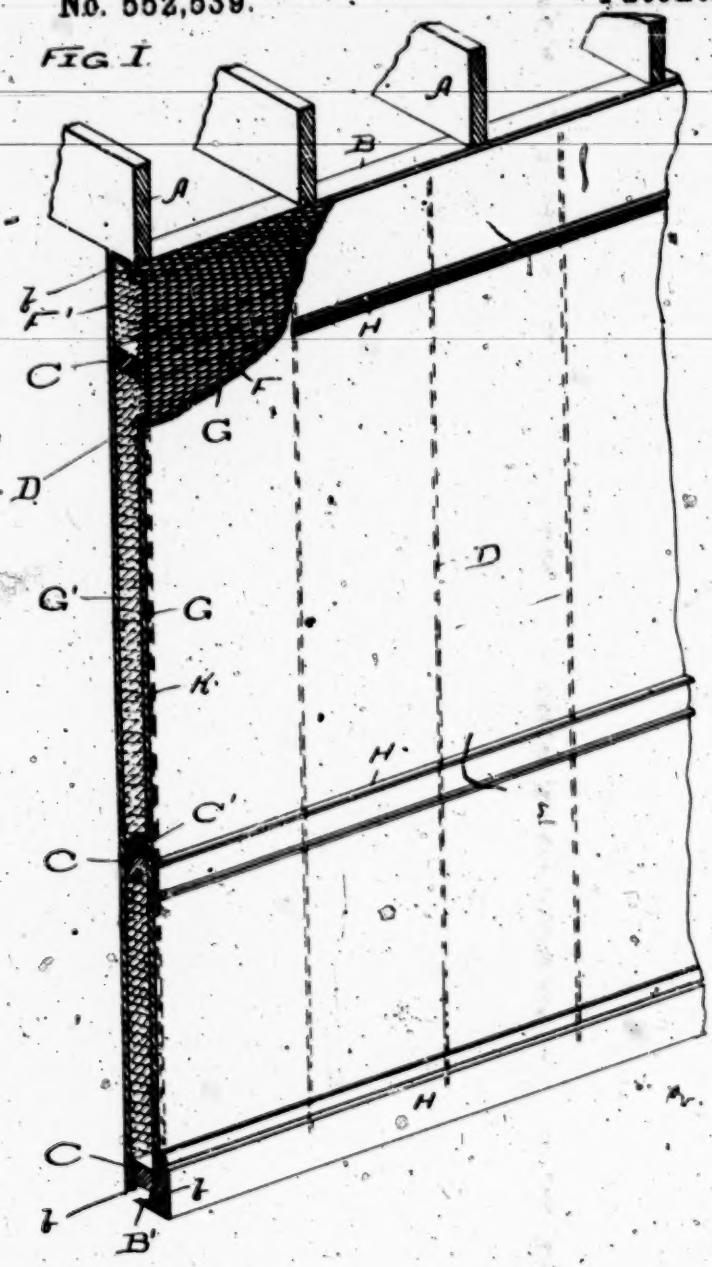


FIG 2

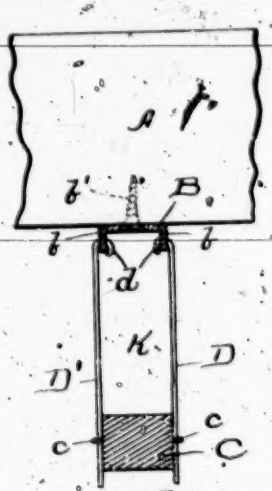
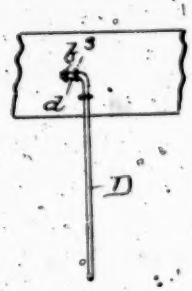


FIG 3



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A. McMunday.

INVENTOR:
Albert McCartney
BY Munday, Evarts & Adcock.
HIS ATTORNEYS.

UNITED STATES PATENT OFFICE.

ALBERT McCARTNEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE ALBERT McCARTNEY COMPANY, OF SAME PLACE.

FIREPROOF PARTITION FOR BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 552,539, dated January 7, 1896.

Application filed August 3, 1895. Serial No. 558,063. (No model.)

To all whom it may concern:

Be it known that I, ALBERT McCARTNEY, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Fireproof Partitions for Buildings, of which the following is a specification.

My invention relates to improvements in the construction of fireproof partitions for buildings.

In constructing the partition according to my invention I first secure to the floor along the line of the proposed partition a channel-bar with the flanges turned up, and then to the ceiling a similar channel-bar parallel to the first and with its flanges turned down, the flanges of the channel-bars being preferably about two inches apart, but may be wider or narrower according to the thickness desired for the partition. I next secure two sets or series of wire rods extending vertically between the flanges of the channel-bars, the ends of the rods being bent and inserted through holes formed in the flanges of the channel-bars, and after the ends of the rod are inserted through the holes in the channel-bars they are hammered or bent down so as to put the rods under tension. I next secure in place between the two parallel sets of upright rods strips or blocks of wood or other suitable material at the proper height or position for the chair-rail, picture-molding and base-board, one or more, as may be desired, so that after the plastering has been applied such trimmings may be properly nailed in place. These strips or blocks inserted between the two parallel sets of vertical rods also serve to stiffen and strengthen the partition. I next secure on each side of the partition metallic lathing of any well-known or suitable kind, such as wire-cloth or expanded metal, by wiring the same to the upright rods extending between the flanges of the channel-bars. I then apply the plastering upon each side of the partition. The partition thus formed is fireproof, comparatively light in weight, is strong and durable, is hollow and impervious to transmission of sound and may be cheaply constructed. The intermediate strips or blocks between the two sets of vertical rods also divide the hollow partition into sections horizontally and thus prevent the hollow partition acting as a continuous vertical flue. These strips or blocks may be of wood, as the plaster forced through the metal interstices of the lathing to form the keys will, of course, to some extent drop down upon these intermediate horizontal strips and cover the same and give them a fireproof covering.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a perspective view of a partition embodying my invention. Fig. 2 is an enlarged detail end view of one of the channel-bars and the vertical rods. Fig. 3 is a modification in which a bar or strip of wood is substituted for the channel-bar.

In the drawings, A A represent the joists, of metal or wood, in the ceiling of a building.

B is a channel-bar secured to the ceiling with its flanges *b b* projecting downward. This channel-bar may be secured to the ceiling in any suitable manner, as by screws *b'*.

B' is a similar channel-bar secured to the floor or to the joist or frame-pieces of the floor, and having its flanges *b b* projecting upward.

D and D' are two sets or series of wire rods extending vertically between the opposite flanges of the channel-bars, each preferably of Bessemer steel, and about five-sixteenths of an inch in diameter. Each of these rods has a bent end *d* at each extremity, which is inserted through a hole formed in the flange of the channel-bar, and after these bent ends are inserted they are, with a hammer or other suitable instrument, clinched or bent at an angle, as indicated in Fig. 2, so as to put the rods under tension and render them stiff and taut.

C C C are strips or blocks of wood extending horizontally between the two parallel sets of vertical rods D D' and secured thereto by staples *c*, or other suitable means. These horizontal strips or blocks are, or should be, placed in proper position for nailing the picture-molding, chair-rail and base-board to the same, one or more, according as one or more of such trimmings are to be used.

F and F' represent metal lathing applied on each side of the partition to the two sets

of vertical rods D D', the metal lathing being applied in the usual way by wiring to the upright rods.

G G' represent the plastering applied to the metal lathing on each side of the partition. H H represent the trimmings applied to either side of the partition—such as picture-molding, chair-rail and base-board.

In the modification indicated in Fig. 3 instead of the channel-bars wooden joists or bars set edgewise are employed to secure the rods D D' at each end. In this construction instead of forming holes in the wooden bars B, I secure the rods D thereto by driving staples b^3 astride the bent end d of the rod D.

The hollow space K between the two plaster walls G G' of the hollow partition is divided into sections horizontally by the strips C C, thus preventing the formation of any continuous vertical flues between the two walls of the hollow partition. The rigid strips C C also add materially to the stiffness and rigidity of the partition as a whole, in addition to forming a means for nailing the trimming-strips H H to the partition. As the horizontal bars B B' are removably secured to the ceiling and floor, and as the upright rods D D' are secured only to these bars B B', the partition is of a movable character and may be bodily removed and reset in another position if desired. This is a matter of some convenience in office or other buildings, which are frequently divided up into rooms to suit the desires of different tenants.

In the drawings, C' represents plastering covering the horizontal strips C C.

I claim—

1. The hollow fire proof partition for buildings, comprising in combination parallel channel bars B B' attached to the floor and ceiling, and having their flanges turned toward each other, two sets or series of upright rods D D', having bent ends inserted through holes in the flanges of said channel bars and extending between the same, rigid strips C C extending horizontally between the two sets of upright rods D D', metal lathing secured to each set of said upright rods, plaster walls G G' applied to said metal lathing, and trimming secured to said horizontal strips, substantially as specified.

2. The hollow partition, comprising in combination two parallel channel bars having their flanges turned toward each other, two sets of upright rods extending between the flanges of said channel bars and having their ends inserted through perforations in said flanges and bent to put the rods under tension, metal lathing secured to each set of upright rods and plastering applied to the metal lathing on both sides of the partition, substantially as specified.

3. The hollow partition, comprising in combination two parallel channel bars having their flanges turned toward each other, two sets of upright rods extending between the flanges of said channel bars and having their ends inserted through perforations in said flanges and bent to put the rods under tension, metal lathing secured to each set of upright rods and plastering applied to the metal lathing on both sides of the partition, and rigid strips or blocks secured to the hollow partition between the two sets of upright rods, substantially as specified.

4. The hollow partitions for buildings, comprising in combination two parallel bars, one secured to the ceiling and one to the floor, two sets of upright rods extending between said bars and secured thereto, and two sets of sheet metal lathing secured one to each set of upright rods, and plastering applied to the metal lathing on both sides of the partition, there being an open space between the two lathing and plastering walls thus formed, substantially as specified.

5. The hollow partition for buildings, comprising in combination two parallel bars, one secured to the ceiling and one to the floor, two sets of upright rods extending between said bars and secured thereto, sheet metal lathing secured to each set of upright rods, and rigid blocks or strips secured between the two sets of upright rods, substantially as specified.

6. The hollow partition for buildings, comprising in combination two parallel bars or frame pieces, one secured to the ceiling and one to the floor, two sets of parallel upright rods extending between said bars or frame pieces, each of said upright rods having at each extremity a bent end or hook secured to the bar or frame piece, sheet metal lathing secured to each set of upright rods with an open space between the two sets of lathing, and plastering applied to each side of said partition on said metal lathing, there being an open space between the two plastering walls thus formed, substantially as specified.

ALBERT McCARTNEY.

Witnesses:
H. M. MUNDAY,
EDMUND ADCOCK.

68 Oct. 20, 1936. R. V. PARSONS 2,058,386

WALL ASSEMBLY

Filed Oct. 20, 1932 2 Sheets-Sheet 1

Fig. 1.

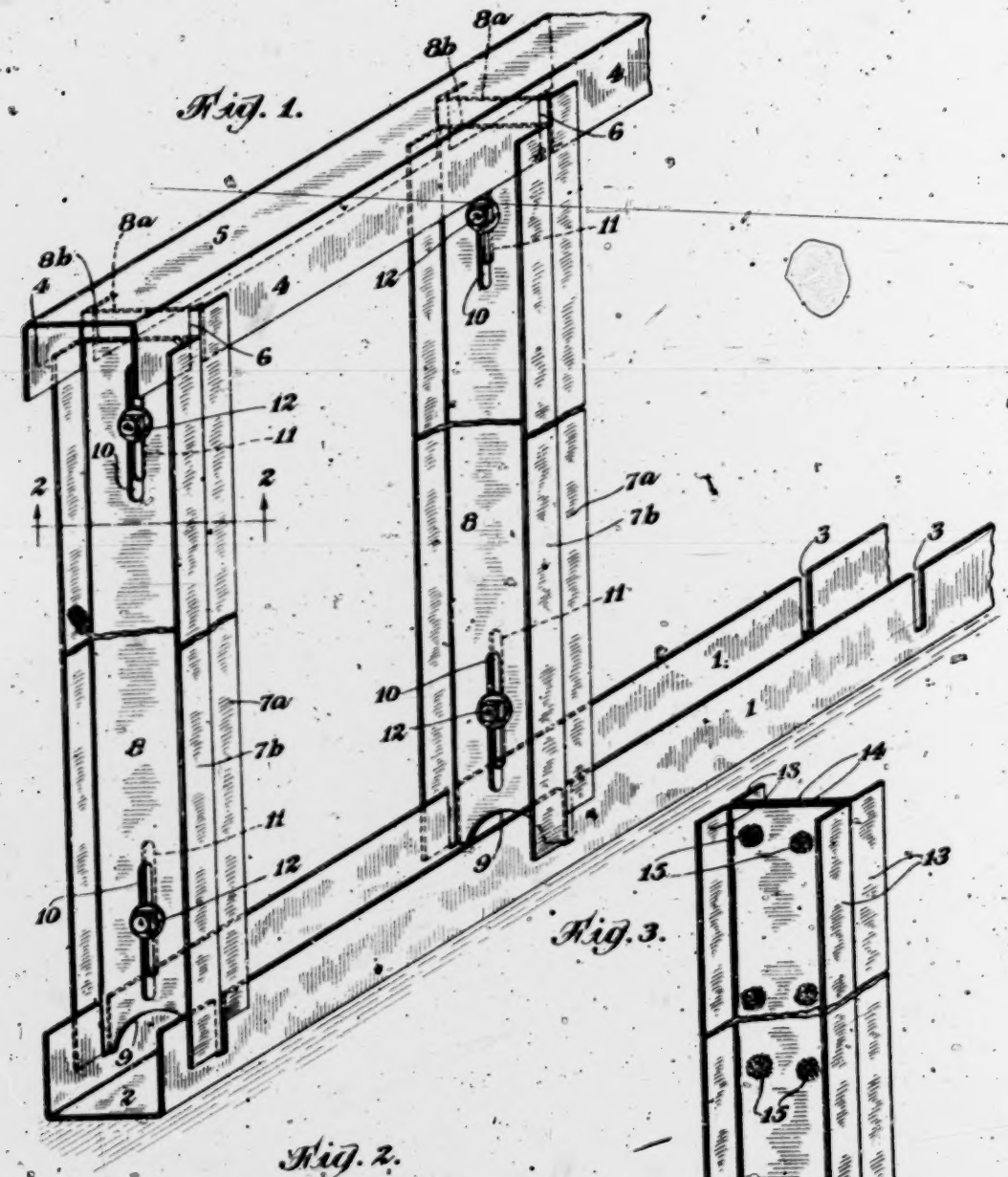

Fig. 3.

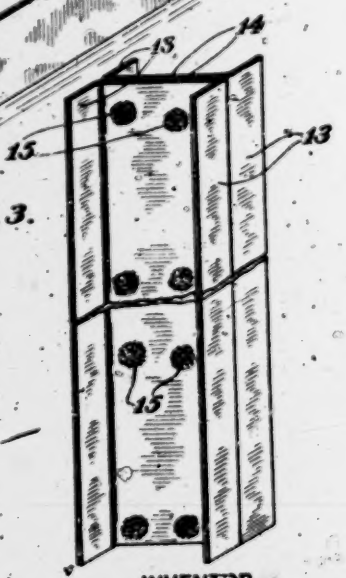

Fig. 2.

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WALL ASSEMBLY

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Fig. 4.

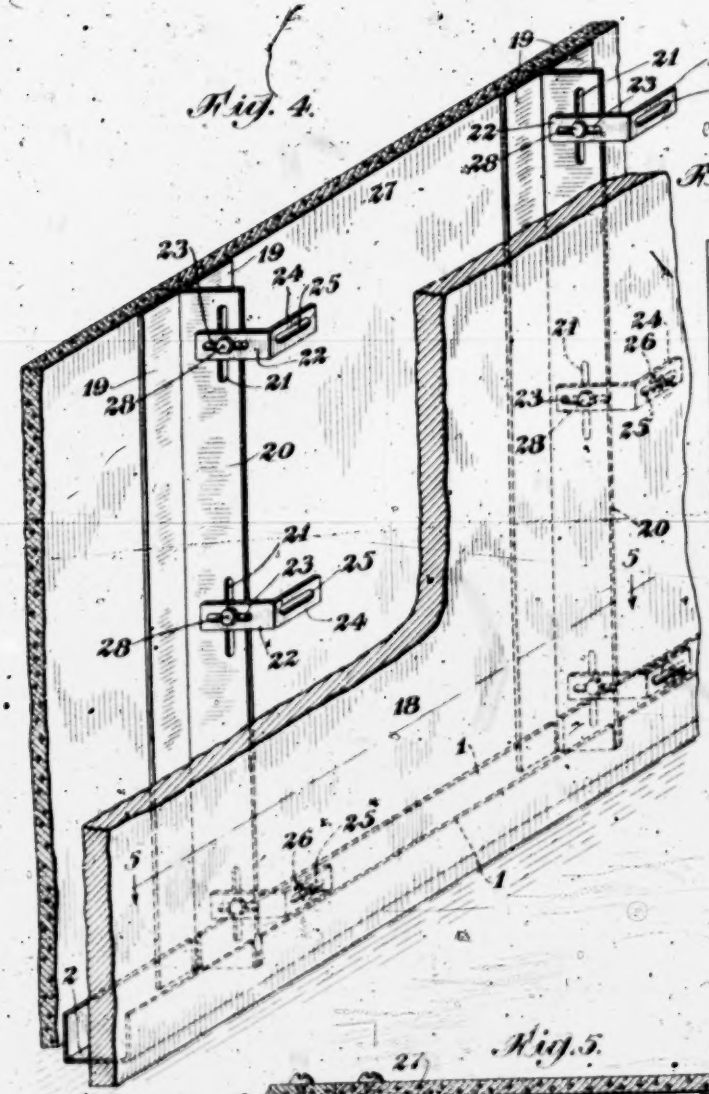

Fig. 7.

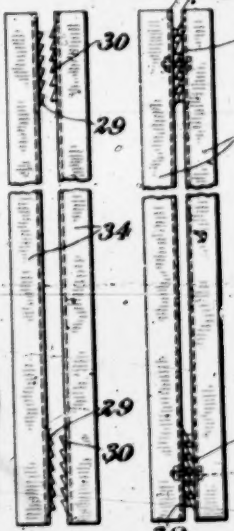

Fig. 6.

Fig. 8.

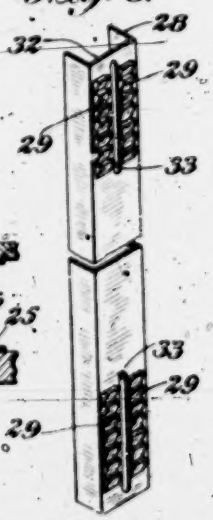

Fig. 5.

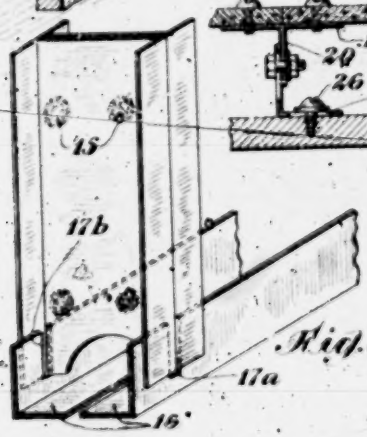

Fig. 9.

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Patented Oct. 20, 1936

2,058,386

UNITED STATES PATENT OFFICE

2,058,386

WALL ASSEMBLY

Raymond V. Parsons, New York, N. Y., assignor to Johns-Manville Corporation, New York, N. Y., a corporation of New York

Application October 20, 1932, Serial No. 638,671

8 Claims. (Cl. 72—115)

This invention relates to a substructure for an assembled wall, and particularly to such a substructure as described in the specifications and illustrated in the appended drawings.

In numerous unitized wall assemblies that have been proposed to replace plastered walls, there is used a substructure that, in the finished assembly, supports units of facing or finished material. These substructures commonly comprise vertical studding secured in the substructure by various means. For example, there have been used fastening members such as rivets, bolts, or screws, for attaching studding at one end to a sill member and at the other end to a ceiling head plate member. It is obvious that a riveted structure cannot be disassembled quickly. Also, holes for bolts or screws, if they are used, may be provided in the members that are to be attached to each other. Since floors of buildings, on which the wall structures are frequently supported, are usually uneven, the difficulty of preforming holes in the ceiling head plates and upper ends of the studding, for example, which will register in the assembled wall is evident.

To obviate the disadvantages of fastening members in a wall that is adapted to be assembled or disassembled quickly, it has been proposed that each end of the web member of a metal stud should slip into a groove in the web member of a T-beam. In such an engagement the studding may slip in a sidewise manner, or it may turn somewhat on its longer axis with consequent distortion of the wall facing attached to the studding. On exposure to high temperatures, distortion or turning of the stud to a most unfortunate degree may occur.

Another means which has been proposed is the use of a stud with a short, extensible head piece, whereby the length of the stud may be adjusted to varying conditions. Provided there is a plurality of engagements whereby the extensible head is permanently secured to the rest of the stud, the extensible head would serve actually to brace or reinforce the stud in the position of overlap of the two members. However, this position of overlap is usually near an end, that is, near a point of attachment to a sill or ceiling head plate member, whereas the position at which reinforcement is most necessary is at the midsection of the studding, where the tendency to distortion is the greatest. Also, extensible studs are sometimes made with a series of holes in each of two members, with fastening means passing through a hole in one member and also a hole in the other member. Such an arrangement makes possible variation in the length of the studs in a stepwise manner, whereas variation in continuous manner is preferable.

A difficulty is also encountered in the irregularity of vertical surface to which an assembled wall is sometimes secured, as at an end of the wall, where it may join an old wall of cement or masonry.

Further, there has been difficulty in providing economical, light-weight studding, as for partition work, that is sufficiently light and also sufficiently rigid to suit the requirements, particularly as to dependability in case of fire.

An object of the present invention is to overcome the disadvantages of assembled walls that have been mentioned. More specifically, an object is to provide a convenient means of assembly or disassembly of the parts of a wall substructure in which some tolerance is allowable in the length of the studding. Another object is to provide convenient means for adjustment of the position of an edge of the wall with respect to an anchorage, as, for example, a permanent wall to which the assembly is attached at one edge. Another object is to provide such a substructure with an extensible studding that is reinforced at its midsection, that may be varied in length by increments or decrements as small as desired, and suitably also that may be tightened in extended position by convenient mechanical means. Other object and advantages will appear from the detailed description that follows.

A preferred embodiment of the invention is illustrated in the drawings in which

Fig. 1 shows a perspective view of a portion of a wall assembly constructed in accordance with the invention.

Fig. 2 shows a cross section of an extensible stud along the line 2—2 of Fig. 1, in the direction of the arrows.

Fig. 3 shows a perspective view of a light-weight but rigid stud conveniently constructed by spot welding together the backs of two light-gauge channel irons, with the flanges of the two channels in alignment.

Fig. 4 shows a perspective view of a portion of a wall, with parts broken away for clearness of illustration, in which an assembled wall is attached by universally adjustable securing means to a firm anchorage, which, in this case, is a part of a permanent building wall.

Fig. 5 is a horizontal cross sectional view of a part of the assembly shown in Fig. 4, on line 5—5.

Fig. 6 is a side view of a modified extensible stud comprising an inclined plane on the back of

one channel iron, registering at its face with the face of another inclined plane of equal but opposite slope on the back of another channel iron.

Fig. 7 is a similar view of the same assembly before the two channel irons are drawn together.

Fig. 8 shows a perspective view of one of the channel irons of the type used in Figs. 6 and 7.

Fig. 9 shows a modification of the means of engagement of an end of a stud.

In the various figures, like reference characters denote like parts.

Thus the channel iron sill member has upstanding flanges 1, and a back or base portion 2. The flanges are provided with transverse grooves 3, suitably with approximately vertical side walls and a depth that is much greater than the width but not equal to the entire height of the flange. The channel ceiling head plate has a back 5 and downwardly extending flanges 4 provided with grooves 6, of kind similar to those in the sill member. Vertical studs consist of two channels placed back to back and having, respectively, flanges 7—*a* and 7—*b* and backs 8—*a* and 8—*b*, whereby there is formed an I-stud, with a web member 9. This web member is engaged at one end in the grooves in the flanges of the sill member and at the other end in the grooves in the flanges of the ceiling head plate. Suitably, the web member is cut away for a certain distance at the center portion of the web member at the lower end of the studding, to form a passageway 9 suitable for receiving conduits, telephone cables, and the like. The backs of the two channel members comprising the stud are held together in adjustable engagement by a fastening member 12, suitably a circular bolt, passing through a perforation 10 in the back of one channel, and a longitudinal slot 11 in the back of the other channel, said perforation and slot registering with each other when the flanges of the two channels are in alignment. The said perforation may also be a longitudinal slot, as illustrated. Also, the two channels are adjustably engaged at a plurality of positions, as illustrated, whereby the backs of the two channels are held firmly together, with the flanges in alignment, to form a rigid I-stud. The two channels or members forming the stud may be of approximately the same length, or one such member may be not substantially more than twice as long as the other. Preferably one member is less than twice as long as the other. In this way, there is formed a composite stud of double thickness or reinforced at its midsection, an important feature adding considerably to dependability, as in case of a moderate fire.

A modified form of stud is that shown in Fig. 3, in which two channel irons, with flanges 13 and backs 14, which are so thin that they could not be secured together conveniently into a strong, dependable stud by the conventional riveting process, are attached to each other at the back portions by spot welding the back portions together at close intervals, as at positions 15. The union is made more secure by providing that not all the welded spots are in a vertical line; in fact, the spots which are welded together may be spaced near each side of the web member of the finished stud, as illustrated.

A modified form of support for either end of the studding is illustrated in Fig. 9, in which there is shown a pair of angle irons 16 each provided with a transverse groove in the upstanding leg thereof. As in the case of the grooved channel iron, so also here the groove (which engages the web member of the stud at two positions) has substantial effective length, that is, the outer ends of the groove are at a substantial distance apart, as indicated by the distance between the outer ends 17*a* and 17*b*. This assures that the web member of a studding engaged in the groove cannot turn on its longer axis or slip sidewise, as would be the case if the web member were engaged in a single groove of very short length, such as a groove in the upstanding web member of a sill T-beam or in a leg of a single angle iron.

The grooves in the stud-engaging members 1, 4, or 16 extend approximately vertically and are arranged in pairs in which the individual grooves composing a pair are alined, that is, so placed that a line connecting two grooves of a pair would extend at approximately a right angle to the direction of the longest dimension of the members 1, 4 or 16.

Means of adjustably attaching the supporting substructure for an assembled wall to a firm anchorage is illustrated in Fig. 4. The firm anchorage 18, in this case the inside face of a permanent wall of a building, is attached to the studding of the wall assembly, as to a vertical T-beam, with flange face 19 and web member 20 provided with vertical, that is, longitudinal slot 21. The means of attachment includes a bracket, suitably a narrow one, with leg 22 provided with a longitudinal slot 23 and with leg 24, extending at approximately a right angle to the other leg, and provided with a longitudinal slot 25. The bracket is secured to the firm anchorage by means of a fastening member 26, suitably a screw inserted through the slot 25, and also to the studding of the assembled wall by means of a fastening member 28, suitably a bolt with nut passing through slots 21 and 23. It will be observed that the longer dimension of the slot in the unit of the substructure is at a right angle to the longer dimension of the slot with which it registers in the bracket, and also that the slots in the two legs of the bracket extend in directions at a right angle to each other. The longest dimensions of the two slots in the bracket lie in a plane at right angles to the longer dimension of the slot in the studding. The various fastening members are adjustable within the slots through which they are inserted, whereby adjustment of the substructure with respect to the firm anchorage may be made in three directions. This universal adjustability is very convenient in correcting for irregularities in buildings that are being equipped with the substructure for an assembled wall. If one of the three slots is substituted by a hole closely fitting the fastening member, then adjustment with respect to the firm anchorage may be made in two directions only. Adjustment by means of a given slot may be made in the direction of the length of the slot.

In inserting an extensible stud, at one end into a groove in a sill member and, at the other end, into a groove in a ceiling head plate, the two parts of the extensible stud may be slipped over each other in such manner as to render fairly tight the engagement of the ends of the studs in the grooves. When a tighter engagement is desired, there may be used a stud of the type illustrated in Figs. 6 and 7. This type is composed of two members, suitably two channel irons each with flanges 34, on the backs 32 of which are inclined planes or corrugations. The inclined planes 29 on one of the channels slope in one direction, whereas the inclined planes 30 on the other channel have an equal slope in the opposite direction. When the members are pulled together tightly, as by means of the bolt 31,

suitably with tapping of the stud, the faces of the inclined planes are forced against each other and slipped over each other in such manner as to increase slightly the length of the studding beyond that to which the studding was originally extended by hand adjustment. The inclined planes on each member register with faces of the inclined planes on the other. On each channel, several inclined planes are suitably placed close together to form a series. There may be a plurality of such series of inclined planes in each of two or more positions (elevations) on each channel. The positions of the series on the two channels should be so selected that they will coact when the stud is extended to approximately its final length in the finished assembly.

The details of one part, or one channel iron, which may be used in forming this type of studding, are shown in perspective in Fig. 8. It will be seen from this figure that the channel has a back 32 provided not only with the inclined planes 29, but also with the slot 33, suitably adjacent to the position of the inclined planes and suitably between two rows of such planes. It will be seen also that the planes are arranged in such manner as to have considerable effective width, as, for example, in two strips at either side of the channel iron. This width tends to keep in alignment the two members forming the stud illustrated in Fig. 6.

The method of assembly of structures in accordance with the invention should be evident from the description which has been given. However, the following remarks on methods of assembly may be of interest.

In constructing an assembly of the type illustrated in Fig. 1, that is, with extensible studs engaged in grooves in channel irons at either end of the studs, the following procedure may be followed. The channel sill, suitably 16-gauge cold rolled steel, with transverse grooves provided in the flanges at appropriate distances, as, for example, on 24 inch centers, is first secured to the floor that is to underlie the structure, as by inserting screws through preformed holes in the back of the sill and into the floor. The ceiling head plate, consisting of a channel iron, suitably also 16-gauge, with grooves cut in its flanges to correspond to those in the sill member, is then attached to the ceiling, in conventional manner, as by screws inserted through holes in the back of the channel and into the permanent ceiling of the building in which the structure is being erected. The extensible studs are then elevated, one by one. These studs are suitably constructed of 20-gauge cold rolled steel channels and are somewhat shorter, before being extended, than the distance between the mouth of one groove and the bottom of the other into which the studs are to be engaged. The lower end of each stud is engaged in the groove in the sill, and one member of the stud is then slipped upward and into engagement with the groove in the ceiling head plate. The fastening members or bolts 12 are then tightened in order to maintain the stud in this extended condition. At a vertical edge of such a substructure, a single upright channel member may be substituted for the I-beam stud. Over the flange faces of the studding there may be maintained units of facing material, as shown, for example, in Fig. 4. Such facing units may be maintained on the face of the studding in a conventional manner and may consist of asbestos and Portland cement or other material.

The studding of the type illustrated in Fig. 3 is not extensible. In erecting a structure including such studding, it is possible to lay the studding flat on the floor, engage the two ends in the grooves of the two channel irons, and then erect the structure so that the one channel becomes the ceiling head plate, and the other the sill. Or, the sill and ceiling head plate may be properly grooved, as stated later, and then fixed in position first, one on the floor and the other on the ceiling, and the studding of fixed length later slipped into the grooves, provided the depth of the groove in the ceiling head plate is substantially greater than that of the groove in the sill plate and the studding is of properly selected length, that is, very slightly less than the distance between the bottom of the groove in the ceiling head plate and the top of the sill member, whereby the studding may be pushed into the deep groove in the ceiling head plate and then allowed to seat itself in the shallow groove of the sill, without disengaging the studding from the groove in the ceiling head plate.

In spite of the difficulties of forming two light-gauge channel irons into a rigid I-stud, I have accomplished this in a very effective and convenient manner. Thus, I have placed two 20-gauge channel irons back to back, with the flanges of the two channels in alignment, to form an I-beam shape, and then spot welded the two backs together at close intervals, by bringing a terminal of an electric welding machine appropriately against each side of what is now the web member of the I-beam. In this way there is formed a small but secure welded spot. Additional welded spots are placed at close intervals, up and down the studding, and also are spaced suitably sometimes towards one side of the web member, sometimes towards the other, so that firm contact between the backs of the channels is secured over a wide area.

In a preferred embodiment of the invention the channel iron sill and ceiling head plate are slightly more narrow than the studding, and the flanges of the studding fit snugly outside the flanges of the channel irons in the finished assembly.

The substructure of the present invention has numerous important features, some of which have already been mentioned.

Although the studs may be engaged loosely, as, for example, when a stud is somewhat shorter than the distance between the bottoms of the upper and lower sets of grooves, the studding is nevertheless kept in vertical alignment by the sides of the grooves and by the flanges on the studding fitting snugly against other parts of the sill and ceiling head plate members.

Some advantages of the mechanical tightening device of the extensible studs have been mentioned. Furthermore, the extensible stud of the type, for example, of Figs. 1 and 2, can be adjusted in length by increments or decrements that may be as small as desired, and is to be distinguished from other extensible studs in which the adjustment may be made only in the finite steps of considerable magnitude, such as the distance between adjacent holes through which a bolt may be inserted to adjust the length of the stud.

Since the bracket clamp for securing the supporting substructure to a firm anchorage permits universal adjustment of the substructure with respect to the anchorage, it is possible to use factory fabricated bracket clips made in standard size, for securing the substructure to a firm anchorage, even through the said anchorage is uneven and irregular in surface. It will be seen that the universal adjustability of this bracket fastener thus obviates the necessity of

using individually measured and manufactured fastening devices, made to fit the peculiar irregularities of a particular anchorage or wall or cut to fit on the job.

The channel sill and ceiling head plate members may each be substituted by various structures, as, for example, by two angle irons, in which case the two upturned edges of a pair of angles would correspond roughly to the two flanges of the channel iron and would carry transverse grooves. The studs may consist of channel irons or other article containing two flanges and a connecting web member; however, the I-stud structure described above is preferred for several reasons.

Since many variations from the illustrative details that have been given may be made without departing from the scope of the invention, it is intended that variations within the spirit of the invention should be included in the scope of the appended claims.

What I claim is:

1. A supporting substructure, adapted for use in an assembled wall, comprising a metal sill and a metal ceiling head plate, said sill and ceiling head plate being provided with transverse grooves with outer ends of each groove at a substantial distance apart, and an extensible I-stud extending from the sill to the ceiling member and engaged at either end in said grooves, whereby turning of the stud on its longest axis and sidewise slipping of the stud are prevented.

2. A supporting substructure, adapted for use in an assembled wall, comprising a channel iron sill with upwardly extending flanges and a channel iron ceiling head plate with downwardly extending flanges, all the said flanges of the sill and ceiling head plate being provided with grooves, and a metal stud extending from the sill to the ceiling head plate and engaged at either end in said grooves and also outside the said flanges, whereby turning of the stud on its longest axis and sidewise slipping of the stud are prevented.

3. A supporting substructure, adapted for use in an assembled wall, comprising a channel iron sill with upwardly extending flanges and a channel iron ceiling head plate with downwardly extending flanges, said flanges of the sill and ceiling head plate being provided with grooves, and a metal stud consisting of two flanges and a connecting web member, extending from the sill to the ceiling head plate and engaged at either end in said grooves, whereby turning of the stud on its longest axis and sidewise slipping of the stud are prevented.

4. A supporting substructure, adapted for use in an assembled wall, comprising a channel iron sill with upwardly extending flanges and a channel iron ceiling head plate with downwardly extending flanges, said flanges of the sill and ceiling head plate being provided with grooves, and a metal stud consisting of two flanges and a connecting web member, extending from the sill to the ceiling head plate and engaged at either end in said grooves, the said flanges of the stud fitted snugly against the flanges on either side of the sill and ceiling head plate channels, whereby turning of the stud on its longest axis and sidewise slipping of the stud are prevented.

5. In a building assembly including upright studs, the improvement comprising a firm anchorage, a bracket clamp with two legs securing the assembled wall adjustably to the anchorage, each leg of the clamp being provided with a longitudinal slot, a fastening member inserted through the slot in one leg of the bracket and attached to the anchorage, and another fastening member inserted through the slot in the other leg of the bracket and attached to the assembled wall, each fastening member being adjustable in the slot through which inserted, whereby adjustment of the position of the assembled wall, with respect to the anchorage, may be made in two directions.

6. In a building assembly including upright studs, the improvement comprising a firm anchorage, a bracket clamp with two legs securing the assembled wall adjustably to the anchorage, each leg of the clamp being provided with a longitudinal slot, a circular fastening member inserted through the slot in one leg of the bracket and attached to the anchorage, and another circular fastening member inserted through the slot in the other leg of the bracket and attached to the assembled wall, each fastening member being adjustable in the slot through which inserted, whereby adjustment of the position of the assembled wall, with respect to the anchorage, may be made in two directions.

7. In a building assembly including upright studs, the improvement comprising a firm anchorage, a bracket clamp with two legs securing the assembled wall adjustably to the anchorage, each leg of the clamp being provided with a longitudinal slot, a fastening member inserted through the slot in one leg of the bracket and attached to the anchorage, and another fastening member inserted through the slot in the other leg of the bracket and through a slot in a stud of said wall, this latter slot extending at approximately a right angle to the slot in the bracket with which it registers, all fastening members being adjustable in the slots through which inserted, whereby adjustment of the position of the assembled wall, with respect to the anchorage, in three directions may be made.

8. An assembly, adapted for use as the supporting substructure in an assembled wall, comprising sill and ceiling head plates, flanges upstanding from opposite side edges of one of the said plates and provided with grooves aligned in pairs, and a stud extending between the said sill and ceiling plates and having a web element and facing elements, the web element at one end being engaged in a pair of the said grooves and the facing elements at the same end of the stud being engaged outside the said flanges, whereby turning of the stud on its longest axis is prevented.

RAYMOND V. PARSONS.

No. 749,862. PATENTED JAN. 19, 1904.

M. HEGBOM.

METALLIC STUD OR THE LIKE.

APPLICATION FILED MAR. 14, 1903.

NO MODEL.

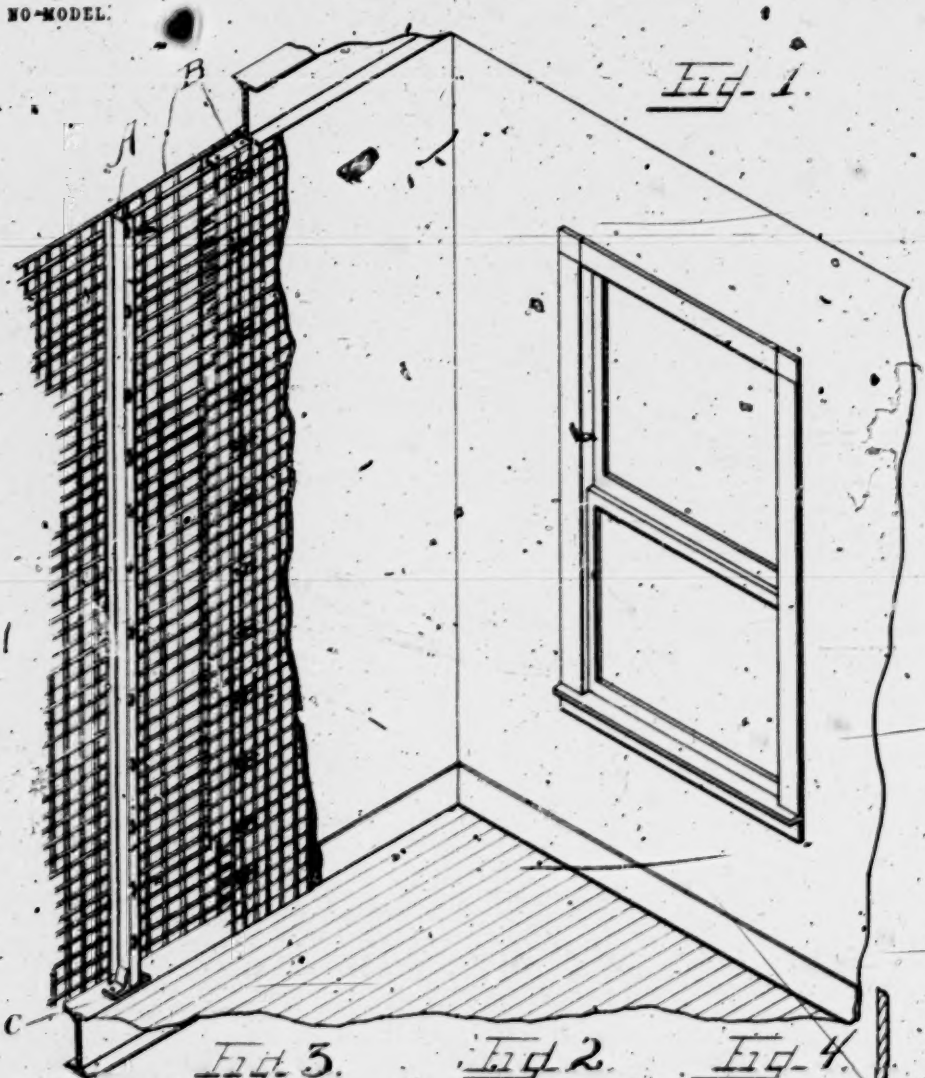


Fig. 1.

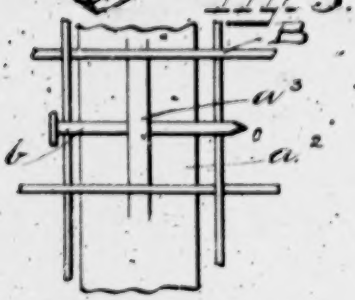


Fig. 3.

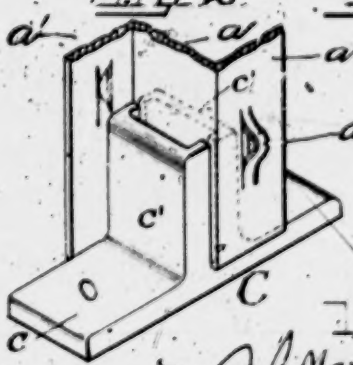


Fig. 2.

Fig. 4.

Witnesses
J. H. Angell
A. B. Odell

Inventor
Marcellus Hegbom
By Charles A. Keels
Atty

No. 749,862. Patented January 19, 1904.

UNITED STATES PATENT OFFICE.

MARSELIUS HEGBOM, OF CHICAGO, ILLINOIS, ASSIGNOR TO FREDERICK VOSS, OF CHICAGO, ILLINOIS.

METALLIC STUD OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 749,862, dated January 19, 1904.

Application filed March 14, 1903. Serial No. 147,792. (No model.)

To all whom it may concern:

Be it known that I, MARSELIUS HEGBOM, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Metallic Studs or the Like; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates more particularly to a metallic stud adapted to permit ready attachment of metallic or other lath therewith. Heretofore it has been more or less difficult to attach metallic lath to a metallic stud, and various devices have been provided to permit attachment of the lath therewith. Most of the constructions heretofore used have been unnecessarily expensive and heavier than desirable.

The object of this invention is to provide a comparatively cheap, simple, and light, but very strong construction whereby the studs may be rolled or formed from sheet metal and of comparatively light weight and shaped to provide flat engaging faces for the lath on which are provided integral means for attaching the lath thereto.

The invention consists in the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a perspective view, partly broken away, of a partition embodying my invention. Fig. 2 is a perspective view of the bottom of the stud, showing the foot-bracket therefor. Fig. 3 is a fragmentary front elevation of a portion of the stud and illustrates the means for attaching metallic or wire lath thereto. Fig. 4 is a longitudinal section taken through the attaching-strap.

As shown in said drawings, the studs are indicated as used in conjunction with wire lath arranged to form a partition adapted to be plastered on both sides. The studs A are formed of sheets of metal of the requisite length, which are bent longitudinally to form Z-bars, as shown in Fig. 2, providing a central web *a*, which may be of any desired width, dependent upon the desired thickness of the partition, and from the opposite margins of which extend integral oppositely-directed parallel flanges a' and a^2. The metal forming said flanges along the length thereof is punched outwardly, forming outwardly-turned open loops or eyes a^3, which are projected outwardly at their middle from said flanges sufficiently to permit a lath-nail *b* or other metallic fastener to be passed therethrough when the lath B is laid against the stud, as shown in Figs. 1 and 3.

Means are provided for fastening said studs in upright position, comprising brackets C, designed to be rigidly attached on the floor in the line of the partition and also on the under side of the joists. Said brackets are shaped each to receive and firmly hold the upper or the lower end of the stud. Obviously said brackets may assume many different forms. As shown, however, a foot-piece or base *c* is provided near its middle portion with two parallel upwardly-extending projections or flanges c', one of which in Fig. 2 is shown in dotted lines, and said projections are spaced a sufficient distance apart to receive between the same the web *a* of the stud and of a width to engage between the parallel side flanges a' a^2. As shown, each of said flanges or projections is provided on its inner side with a recess adapted to permit a wedge or the like to be driven therein, firmly engaging the studs in the clamp or bracket and rigidly holding the same from movement. Obviously the studs may be made of any desired sizes and gage of metal, and the same may be conveniently used in conjunction with any kind of metallic lath for fireproof purposes or otherwise. The brackets or clamps may be varied in construction, and many other details of construction may be varied without departing from the principles of this invention.

I claim as my invention—

1. A sheet of metal rolled to form a Z-bar, each of the lateral oppositely-directed flanges

of said Z-bar having thereon a plurality of straps integral therewith and providing open loops adapted to receive fastening means.

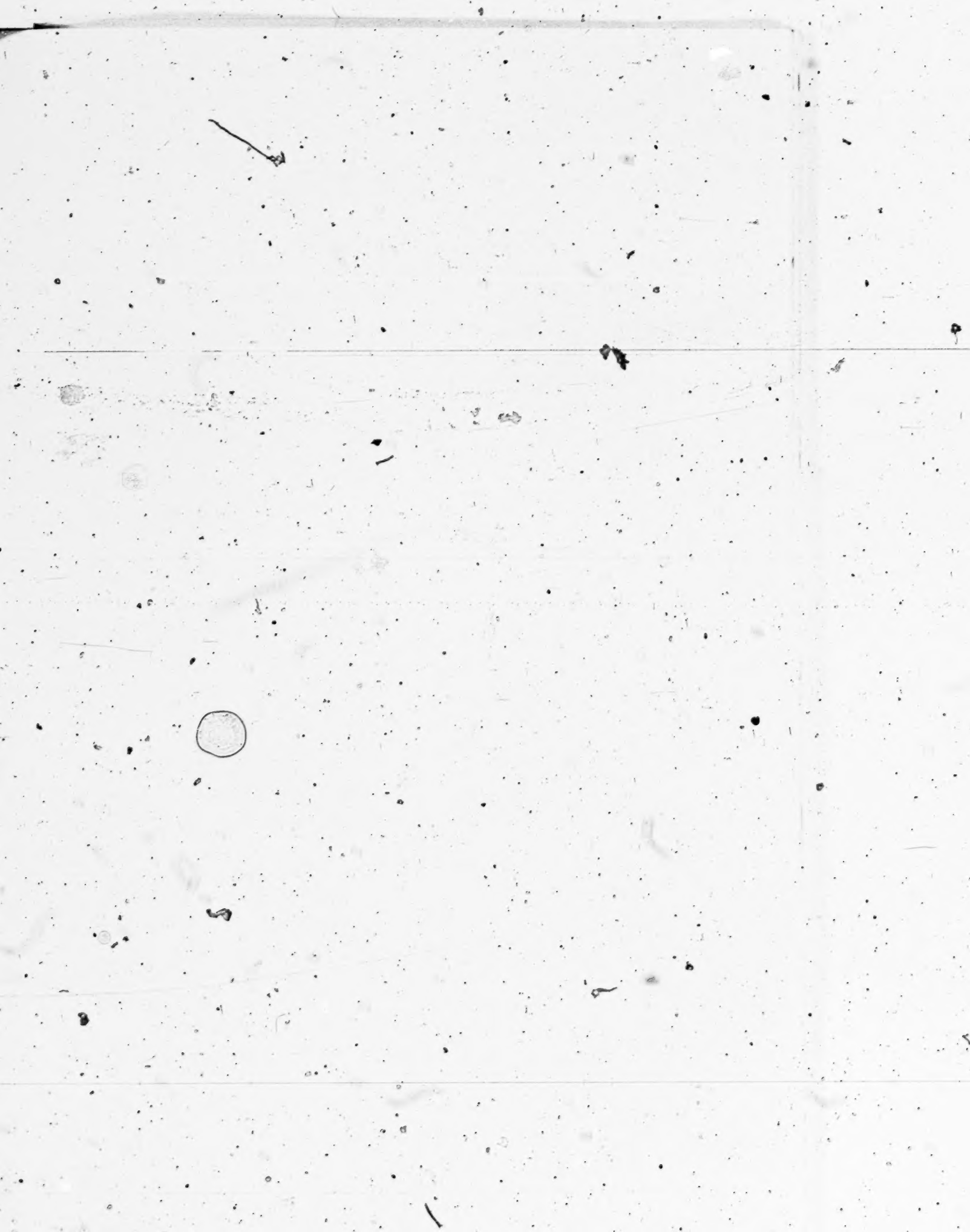
2. A stud for the purpose specified comprising an integral web and oppositely-directed parallel flanges on each margin thereof, and a plurality of outwardly-directed straps integral at their ends with said side flanges of the stud and each forming an open loop and adapted to project through the interstices of metal lath or the like and to receive fastening means therein and metallic brackets adapted to receive the ends of said stud and to afford fastening means therefor.

3. A metallic Z-bar stud comprising in combination a web and side flanges, having a plurality of integral outwardly-directed straps forming open loops and a bracket for each end of the stud having a width adapted to fit between the flanges and having parts thereon adapted to engage on each side of the web and shaped to admit of wedging the stud therein.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

MARSELIUS HEGBOM.

Witnesses:
C. W. HILLS,
A. C. ODELL.



77

No. 840,596. PATENTED JAN. 8, 1907.

G. A. TURNBULL.

METALLIC STUD.

APPLICATION FILED SEPT. 25, 1905.

Fig. 1

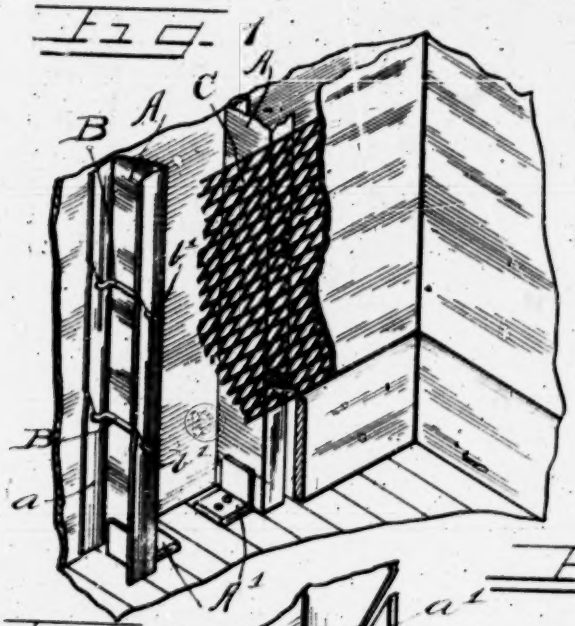


Fig. 2

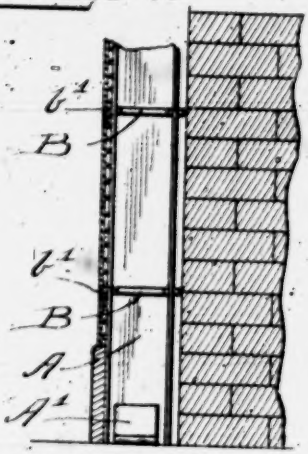


Fig. 4

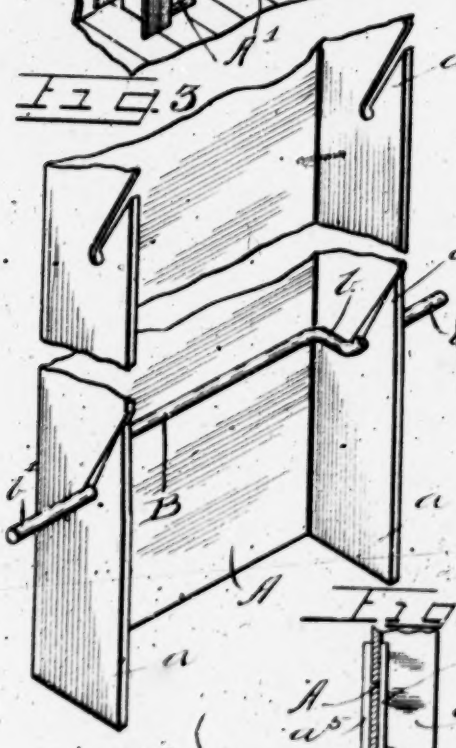


Fig. 5

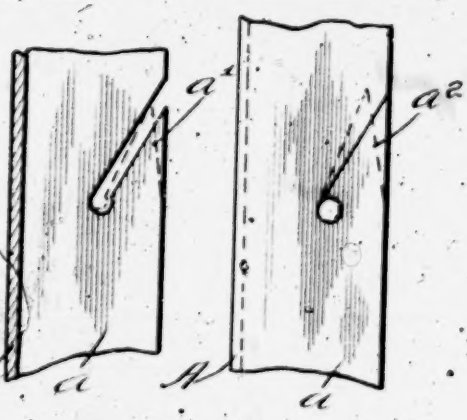
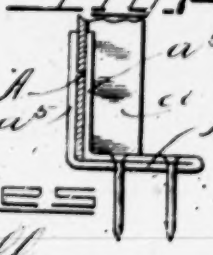


Fig. 6

Fig. 7



Witnesses

J. H. Angell

W. W. Wilkenburg

Inventor

George A. Turnbull

by Chas. Hasler Hills Atty.

UNITED STATES PATENT OFFICE. 78

GEORGE A. TURNBULL, OF CHICAGO, ILLINOIS, ASSIGNOR TO ROSELLA E. TURNBULL, OF CHICAGO, ILLINOIS.

METALLIC STUD.

No. 840,596. Specification of Letters Patent. Patented Jan. 8, 1907.

Application filed September 25, 1905. Serial No. 279,961.

To all whom it may concern:

Be it known that I, GEORGE A. TURNBULL, a citizen of the United States, and a resident of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Metallic Studs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in metallic studs adapted for use in connection with metallic lath.

The object of the invention is to afford a cheap and simple construction affording great strength and rigidity and in combination therewith means whereby lath may be rigidly secured thereon.

The invention consists in the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a fragmentary perspective view showing a partition constructed with studs embodying my invention. Fig. 2 is a transverse view of a wall, showing studs embodying my invention used as furring. Fig. 3 is an enlarged fragmentary detail of the stud, illustrating the means for securing the lath thereon. Fig. 4 is an enlarged fragmentary section of the stud, showing the slot open. Fig. 5 is a similar view showing the slots closed. Fig. 6 is an enlarged detail of the fastening means.

As shown in the drawings, the stud A comprises a steel channel usually constructed by bending or forming a strip of sheet metal to afford inwardly-directed parallel flanges *a*, which are slotted obliquely from their outer edges inwardly and downwardly to a point intermediate the web and the edge of the flange, affording angular points a' a^2. As shown, said slots are enlarged slightly at the bottom to receive the fastening means, which comprise rods or wires B of suitable gage, bent to afford right-angled portions *b* near each end of said rod and the extremities *b'* of which are again bent at an angle and parallel with the body of the rod and project through the slots, as shown in Figs. 1 and 3, while the right-angle portions *b* lie within and bear against each of the flanges.

When the rods are rigidly secured in place, the slots in the flanges are closed thereon by striking the points a' or a^2 inwardly on the flange, as shown in Fig. 3 and in dotted lines in Figs. 4 and 5.

The studs may be secured in place in any suitable manner, and for this purpose angles of steel or other suitable material may be secured to the webs at the ends of each stud and nailed to the floor. Said angles, if preferred, may comprise a strip of sheet metal and may be bent to afford a loop A', as shown in Fig. 7, with the ends a^3 bent upwardly at a right angle and between which the webs of the studs engage at each end. The loops A' are secured to the floor or joists by means of nails driven through the loop.

The operation is as follows: The stud constructed as described and having the fastening rods or wires B secured therein is secured in place in the line of partition or, if to be used for furring, along the wall, as shown in Fig. 2, and the metallic lath C, of sheet or expanded metal or woven wire or any suitable material, is pressed over the extended ends *b'* of the fastening-wires, which are bent to hook over the lath, engaging the same firmly against the side flanges *a* of the stud.

From the construction described it is obvious that wires may be secured in place either before or after shipment and, furthermore, that the studs may be cut to any desired length and rigidly secured in place by means of the loop A^3, before described, which need not be rigidly fastened to the stud.

The rods or wires B may be inserted into the slots in the stud by twisting the points a' a^2 outwardly sufficiently to receive the same, then turning the same back and closing the same inwardly on the rods or wires.

Obviously details of construction may be varied without departing from the principles of my invention.

I claim as my invention—

1. A stud comprising a channel slitted obliquely in the flanges to afford points directed toward the top of the stud and affording closed seats behind said points.

2. A metallic stud comprising a strip of sheet metal bent to afford one or more longitudinal flanges thereon and having the edges of the flanges slotted obliquely downwardly and inwardly and means secured in the slots adapted to engage the lath to the stud.

3. A metallic stud comprising a channel downwardly and inwardly directed slots in

the oppositely-disposed flanges and rods or wires secured in said slots and projecting beyond the sides of the stud.

4. A metallic stud comprising a strip of sheet metal formed to provide longitudinal parallel flanges each slotted obliquely downward in its edge at intervals in its length and means secured in said slits adapted to engage lath to said stud.

5. A stud comprising a channel having the flanges slotted on opposite sides thereof and a wire rigidly engaged in the bottoms of said slots.

6. A stud comprising a channel having downwardly and inwardly directed slots in its flanges, a wire bent to engage between the flanges and affording outward-directed ends adapted to support the lath and clips of sheet metal bent to engage the ends of the studs and adapted to be secured to the floor and joists.

7. A stud comprising a channel-bar having oppositely-disposed, downwardly-directed slots in its flanges, a rod bent to engage against the inner sides of said flanges and having its ends directed laterally through said slots, and a clip on each end of said stud.

8. A stud comprising a channel-bar having downwardly-directed slots in its flanges and wires or rods rigidly engaged in said slots and projecting outwardly from said flanges.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

GEORGE A. TURNBULL.

Witnesses:
W. W. WITHENBURY,
WM. C. SMITH.

80

W. D. HENDERSON.
PARTITION STUD CLAMP.
APPLICATION FILED APR. 20, 1915.

1,167,899.

Patented Jan. 11, 1916.

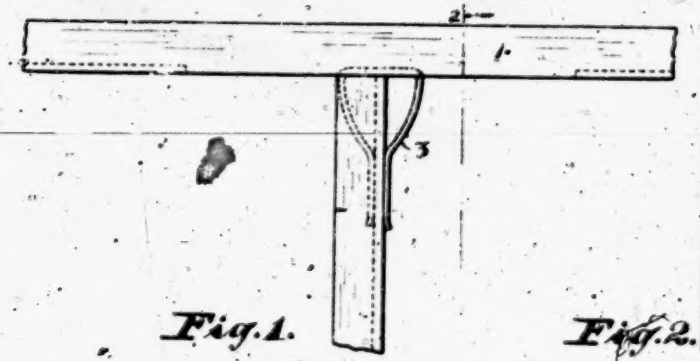


Fig. 1.

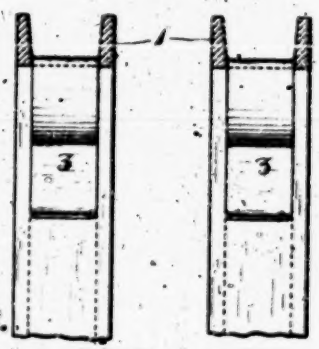
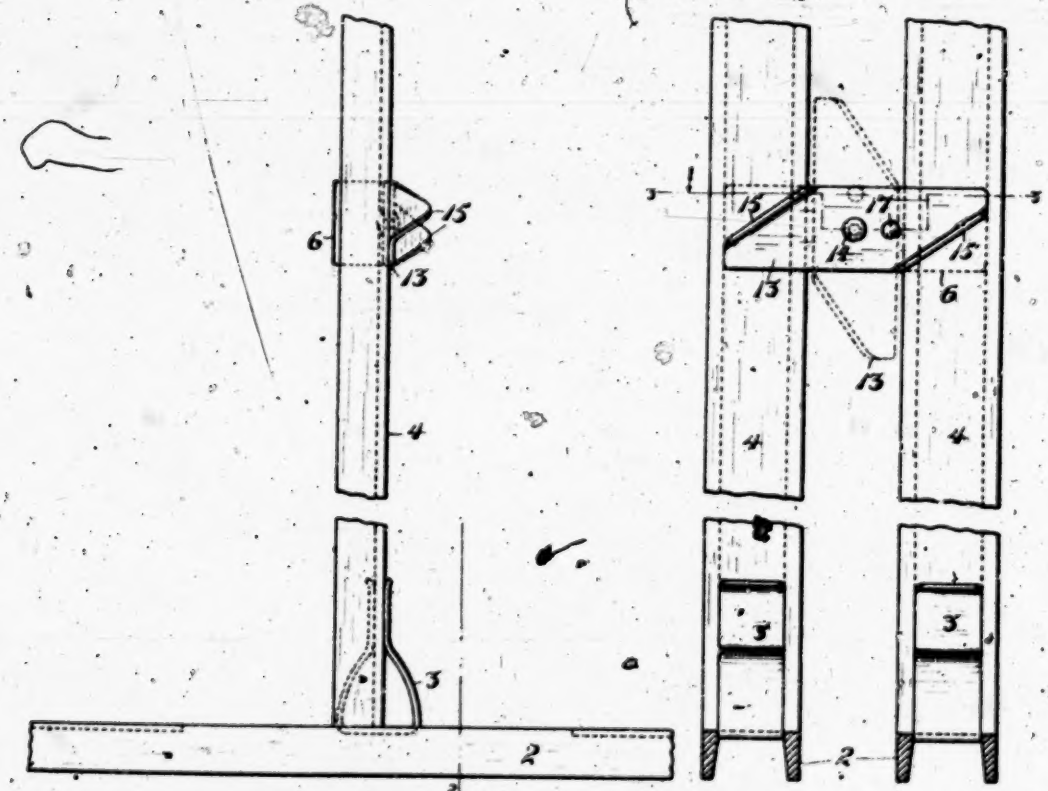


Fig. 2.



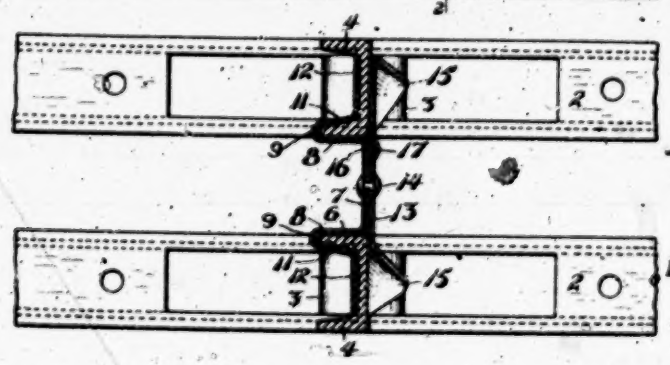


Fig. 3.

INVENTOR,
W. D. Henderson,
BY
Franklin Wright.
ATTORNEY

UNITED STATES PATENT OFFICE. 81

WILBERT D. HENDERSON, OF SAN FRANCISCO, CALIFORNIA.

PARTITION-STUD CLAMP.

1,167,899. Specification of Letters Patent. Patented Jan. 11, 1916.

Application filed April 20, 1915. Serial No. 22,602.

To all whom it may concern:

Be it known that I, WILBERT D. HENDERSON, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Partition-Stud Clamps, of which the following is a specification.

This invention relates to an improved clamp for clamping together the two channel-shaped stud members which form the studs to support lathing in partitions in buildings, and the object of the invention is to provide a clamp of this character which can be secured in place more expeditiously than heretofore.

In the accompanying drawing, Figure 1 is a broken side view of a portion of framing for a partition; Fig. 2 is a vertical cross section on the line 2—2 of Fig. 1; Fig. 3 is a horizontal cross section on the line 3—3 of Fig. 2.

Referring to the drawing, 1, 2 indicate upper and lower horizontal channel-irons forming respectively the top and bottom of framing for an interior partition, and having parts 3 cut therefrom and bent respectively downward and upward to form guides for the upper and lower ends of stud members 4, each made of channel-irons. These guides and the manner of connecting them to the stud members form no part of my present invention.

The stud members are connected, intermediate of their ends, at either one or two points, by clamps, and my invention relates to an improved form of clamp for so connecting them. Said clamp consists of a stationary member 6 of sheet metal having a central portion 7 adapted to extend between the two stud members, two portions 8 extending at right angles from said central portion adjacent to the inner sides of said stud members, bent portions 9 extending around the edges of the inner members of the channel-shaped stud members, portions 11 extending closely adjacent to the inner surfaces of said inner sides of the channel-irons or stud members, and portions 12 extending closely adjacent to the inner surfaces of the central portions of said channel-irons. The clamp also comprises a movable member 13 of sheet metal, pivoted, as shown at 14, centrally to the member 6, corners of which member 13 are bent obliquely in a plane at right angles to its plane so as to form finger pieces 15, by which the member 13 can be turned on its pivot. The member 6 has on its outer side a projection 16 adapted to engage a recess 17 on the inner side of the member 13 to hold the same in position.

To secure the clamp in place the member 13 is turned at right angles to the member 6 so that it will just pass between said stud members or channel-irons. The member 6 is then placed in position against the inner surface of said channel-irons, and the member 13 is then turned through a right angle so as to press upon the outer sides of said channel-irons. When the member 13 has been turned to a position exactly parallel with the member 6, the projection 16 will engage the recess 17 to hold the two sheets in said relative position, clamping the channel-irons between them by spring pressure.

The utility of this device is obvious, since it effects a great saving in labor, which is the principal source of expense in work of this character.

I claim:—

1. A clamp for uniting channel-shaped stud members comprising a stationary member adapted to engage the inner surfaces of said stud members to prevent it from turning on said members, and a member pivoted to said stationary member and having a plane inner surface whereby it can slide in contact with the outer sides of said stud members.

2. A clamp for uniting channel-shaped stud members comprising a stationary member adapted to engage the inner surfaces of said stud members to prevent it from turning on said members, and a member pivoted to said stationary member and having a plane inner surface whereby it can slide in contact with the outer sides of said stud members, said members having parts adapted to engage each other with spring pressure when they extend parallel with each other.

3. A clamp for uniting channel-shaped stud members comprising a stationary member adapted to engage the inner surfaces of said stud members to prevent it from turning on said members, and a member pivoted to said stationary member and having a plane inner surface whereby it can slide in contact with the outer sides of said stud members, said members having, the one a projection, and the other a recess to receive

said projection to limit the turning movement of the latter sheet.

4. A clamp for uniting channel-shaped stud members comprising a stationary member adapted to engage the inner surfaces of said stud members to prevent it from turning on said members, and a member pivoted to said stationary member and having a plane inner surface whereby it can slide in contact with the outer sides of said stud members and also having a portion bent outwardly to form a finger piece.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILBERT D. HENDERSON.

Witnesses:
FRANCIS M. WRIGHT,
D. B. RICHARDS.

83

Aug. 29, 1933. K. S. FRAZIER 1,924,986

PARTITION WALL AND METHOD OF CONSTRUCTING THE SAME

Filed July 21, 1930 2 Sheets-Sheet 1

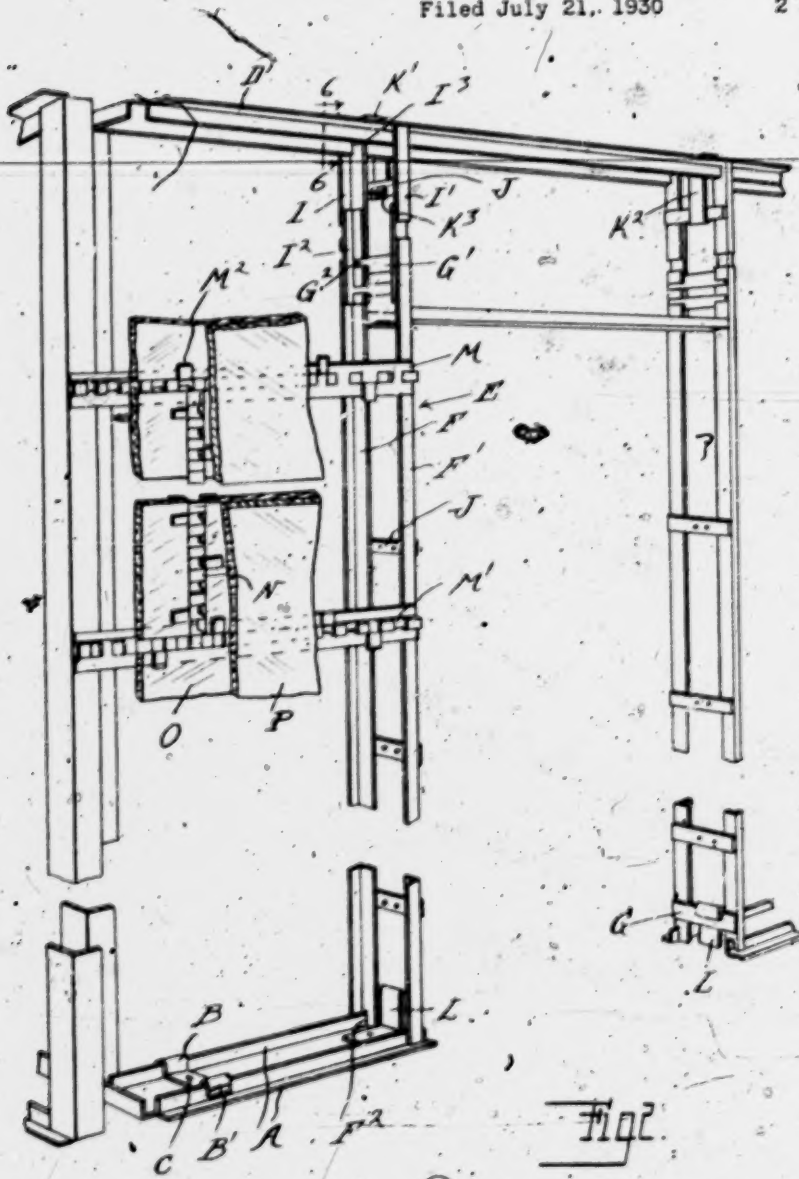


Fig. 1.

Fig. 2.

INVENTOR
Kenneth S. Frazier

BY Whittemore / Hulbert Whittemore
+ Belknap

ATTORNEYS

84 Aug. 29, 1933. K. S. FRAZIER 1,924,986

PARTITION WALL AND METHOD OF CONSTRUCTING THE SAME

Filed July 21, 1930 2 Sheets-Sheet 2

Fig. 5.

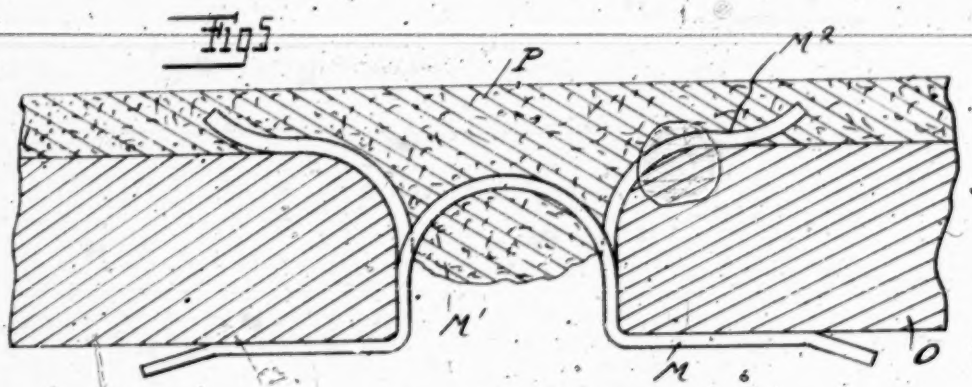


Fig. 3

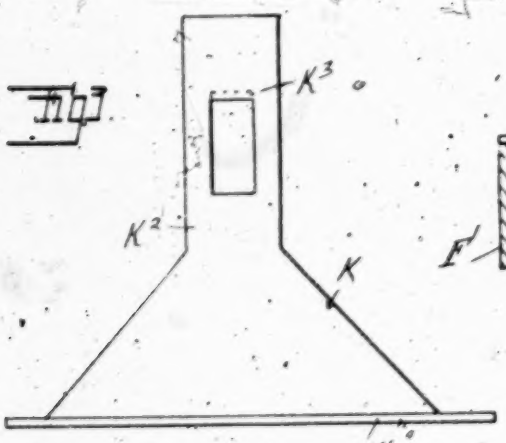
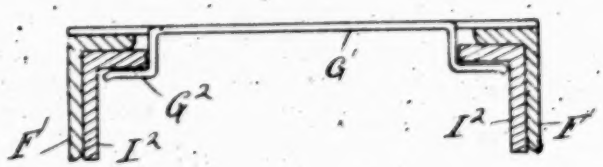


Fig. 4



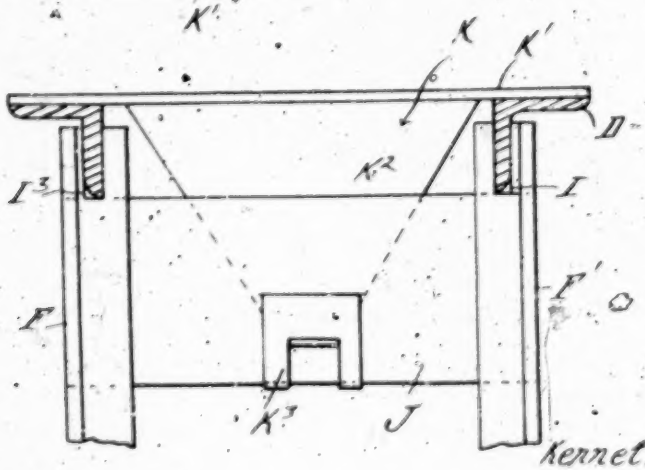


Fig. 6.

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BY Whittemore, Hulbert & Whittemore & Belknap

ATTORNEYS

Patented Aug. 29, 1933 1,924,986

UNITED STATES PATENT OFFICE

1,924,986

PARTITION WALL AND METHOD OF CONSTRUCTING THE SAME

Kenneth S. Frazier, Detroit, Mich., assignor to Detroit Steel Products Company, Detroit, Mich., a corporation of Michigan

Application July 21, 1930. Serial No. 469,521

5 Claims. (Cl. 72—46)

The invention relates to partition walls of that type comprising a metallic supporting frame and a facing formed of plaster board or other suitable material. It is the object of the invention to facilitate the erection of the structure by the introduction of various novel features and to this end the invention consists in the construction as hereinafter set forth.

In the drawings:

Figure 1 is a perspective view of my improved partition wall showing the frame erected and a fragment of the plaster board facing applied thereto.

Figure 2 is a side elevation of the spacer clip for the sill and head plates;

Figure 3 is an elevation of one of the friction clips for securing the studs;

Figure 4 is a cross section through one of the studs showing the sliding engagement of the telescopic extension therewith;

Figure 5 is a cross section showing the plaster joint between adjacent facing sections, and

Figure 6 is a section on the line 6—6 of Figure 1.

In general construction my improved partition wall comprises head and sill plates formed of spaced angle bars, studs also formed of spaced angle bars and telescopically extensible to adjust to different heights of ceilings, facings formed of sections of plaster board and metallic strips for attaching said facings to said studs. It is one of the features of my improvement that the angle bars forming the head and sill plates are secured to each other by spring clips which serve both as a means for properly spacing the bars and in case of the sill plates for securing them in proper position to the floor. As shown, A are the angle bars forming the sill plates and B is the spring clip which is of a U-shape formed by return bent flanges B' adapted to frictionally clamp the upstanding flanges of the angle bars. The central portion of the clip B is apertured for engagement with a screw C or other securing device by means of which it may be attached to the floor. A head plate is similarly formed from angle bars D and intermediate the head and sill plates are stud members E.

The stud members E are formed by angle bars F and F' spaced from each other to have their parallel flanges fit outside the vertical flanges of the sill plate and with their outwardly extending flanges slotted at their lower ends as indicated at F^2 adjacent to said parallel flanges to engage the upstanding flanges of the sill plate. Connecting straps G plates welded to the angle bars F and F' are arranged at suitable intervals to properly space these bars and to impart the desired rigidity to the structure, these straps having apertures therein for attachment of nailing blocks. At the upper ends of the stud is a telescopic extension member formed of angle bars I and I' spaced correspondingly to the bars F and F' and cross-connected by one or more tie plates J welded thereto. Nested within these angle bars I and I' are angle bars I^2 which are secured thereto by welding and which extend downward to telescopically engage with the bars F and F'. The cross bar G' adjacent to the upper end of the angle bars F and F' has ears G^2 bent therefrom to embrace the flanges of the angle bars I^2 and to hold the same in engagement with said bars F and F'. The upper ends of the bars I and I' have their inwardly extending flanges slotted at I^3 to correspond to the slots F^2 at the lower ends of the bars F and to engage the downwardly extending flanges of the head plate.

While it is usual in the construction of a partition to space the studs uniformly, it is sometimes desirable to shift the position of a stud so as to avoid a pipe or some other obstruction. To facilitate this, I secure the studs frictionally to the head plate instead of attaching them in predetermined positions. For this purpose I employ a friction clip K preferably formed of sheet metal bent to provide a top cross bar K' which fits over the angle bar D of the head plate and also having a centrally depending portion K^2 which is adapted to be bent around the lower edge of the cross plate J. To facilitate such bending a tongue K^3 is struck out from the central portion K^2 so as to reduce the cross section of the outer portion forming the bend and also forming means for engagement by the bending tool.

Where a door opening is to be left in the partition, door bucks are placed on opposite sides thereof, these being formed of studs which are secured in position by fixed clips L nailed or otherwise secured to the floor and ceiling and bent over the adjacent cross plate of the stud.

Where gypsum or plaster board is used for the outer facings, it is secured to the studding by metallic strips M. These are of a U cross section with outwardly extending flanges, the U portion having a series of slots therein formed as indicated at M'. At intervals tongues M^2 are struck out from this U portion to extend oppositely

of the plaster board sections O. The strips M may be secured to the studs in any position according to the width of the section of plaster board to be held thereby. The securing means is merely a wire which passes through the slots M' and around the adjacent angle bar of the stud. This greatly facilitates the application of the plaster board for the sections may be of any size and the bars M positioned to engage therewith. Short strips N similar in construction to the strips M may be used in the joints between the sections of board that extend in a transverse direction.

In plastering a wall the spaces between the rounded or U-shaped portions of the strips M and the adjacent edges of the plaster board will form a rib or filling of plaster P which contributes an additional element of strength. Also the portions of the plaster which pass through the slots M' will form keys for interlocking with the strip.

In erecting the partition with the elements above described, the studs may be positioned wherever most convenient and secured by the clips K. The strips M being wired to the studs can also be secured in any position and without limiting the position of the studs, and the fact that the telescopic engagement between the stud and its extension member is located on the inner side of the angles avoids any projection on the outside which would interfere with the strips M or the plaster board facings. It is also to be noted that the joints between the plaster board facings may be in any position for there is nothing requiring any fixed location of the strips M.

What I claim as my invention is:

1. In a partition wall, a stud comprising parallelly arranged angle bars and cross plates connecting the same, an extension member for said stud formed of aligned parallelly arranged angle bars and a cross connecting plate, and angle bars having a portion nesting within the bars of said extension and welded thereto and also having a downwardly extending portion nesting within and slidably engaging the angle bars of the main portion of said stud.

2. In a partition wall, the combination with head and sill plates, of a stud extending therebetween and means for slidably securing the upper end of said stud to said head plate whereby it may be adjusted to different transverse positions longitudinally of the head plate.

3. In a partition wall the combination with head and sill plates formed of spaced angle bars, of a stud also formed of spaced angle bars and cross tie plates, said stud being provided with a telescopic extension at its upper end, and a clip frictionally engaging said head plate and locked to the extension of said stud to hold the latter in extended position and to adjustably position the stud in relation to the head plate.

4. In a partition wall, the combination with head and sill plates formed of spaced angle bars, of a stud also formed of spaced angle bars and cross connecting plates, and a clip having a portion for extending over the bars of said head plate and a depending central portion for hooking over a cross plate of said stud to frictionally hold the latter in position in relation to said head plate.

5. In a partition wall, a stud formed of parallelly arranged spaced angle bars and cross connecting plates, an extension of said stud formed of similar parallelly arranged angle bars and cross connecting plates, and a sliding connection between said stud and extension located on the inside of said angle bars whereby the outer faces thereof are free from projections or obstructions.

KENNETH S. FRAZIER.

87 Nov. 20, 1934. F. A. MANSKE 1,981,239

BUILDING CONSTRUCTION

Original Filed June 27, 1932 3 Sheets-Sheet 1

Fig. 1

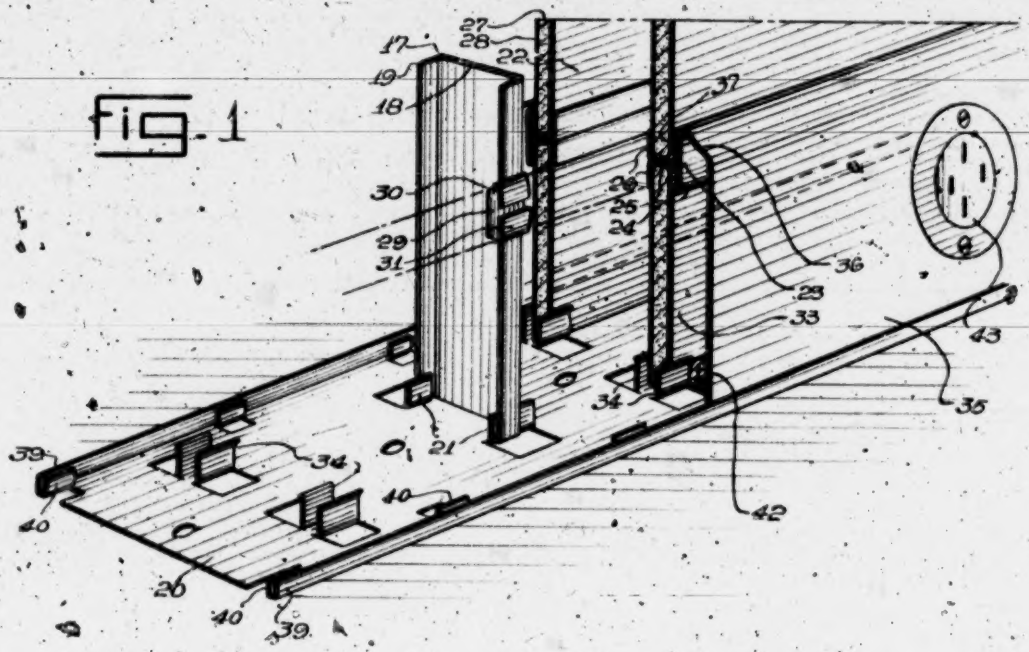


Fig. 2

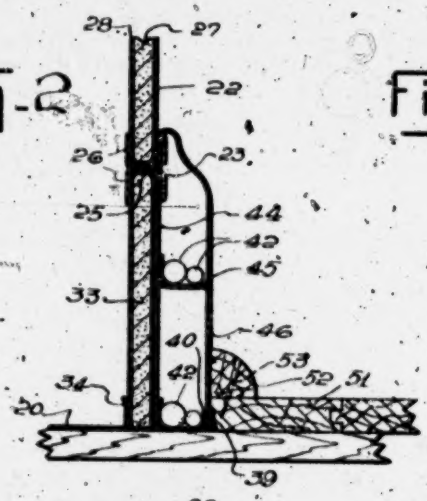


Fig. 3

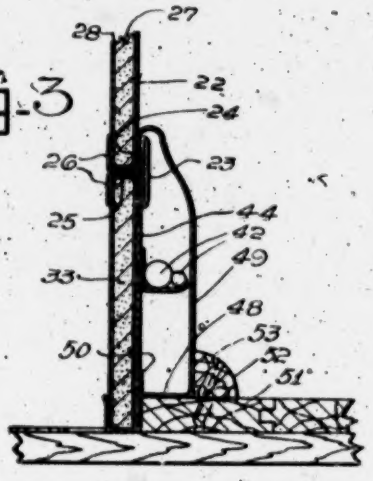


Fig. 4

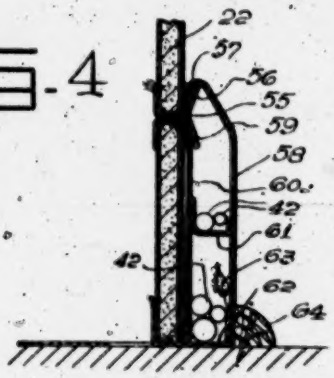
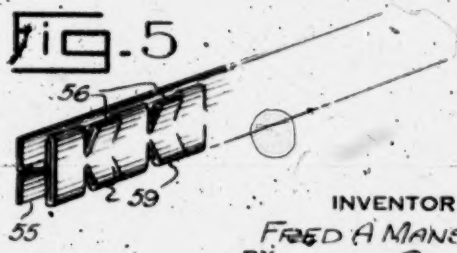


Fig. 5



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88 Nov. 20, 1934. F. A. MANSKE 1,981,239

BUILDING CONSTRUCTION

Original Filed June 27, 1932 3 Sheets-Sheet 2

Fig. 6

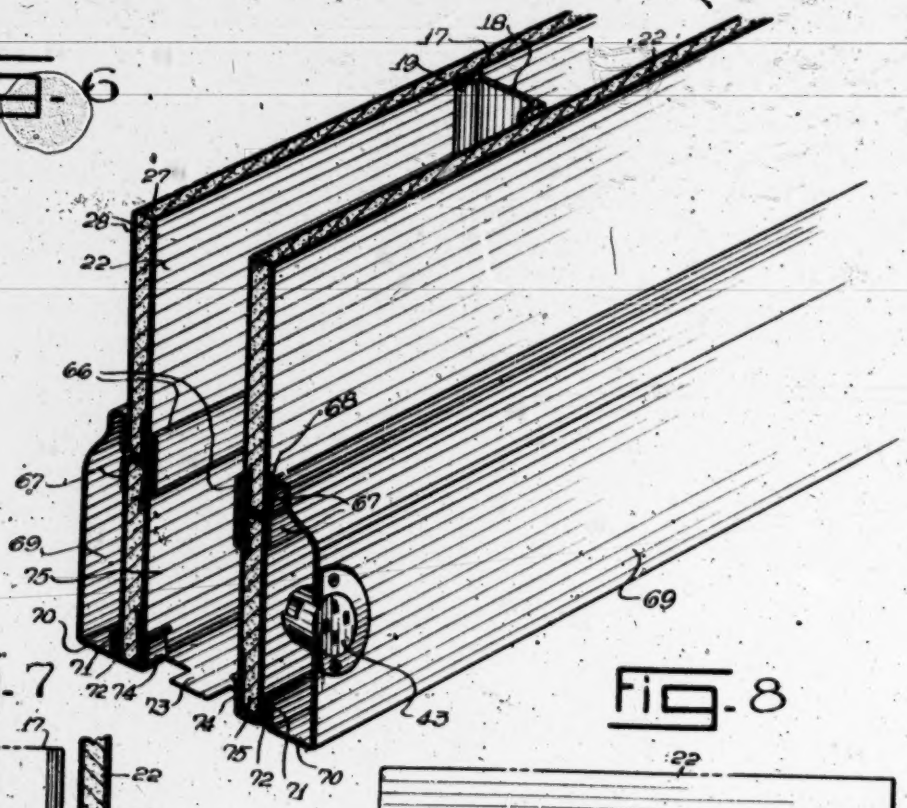


Fig. 7

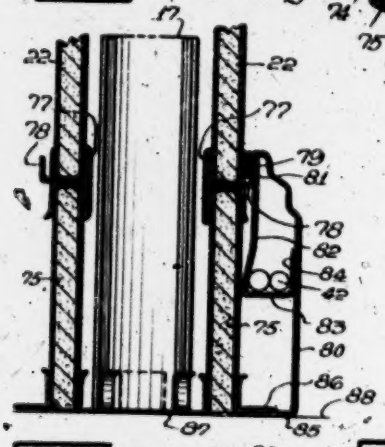


Fig. 8

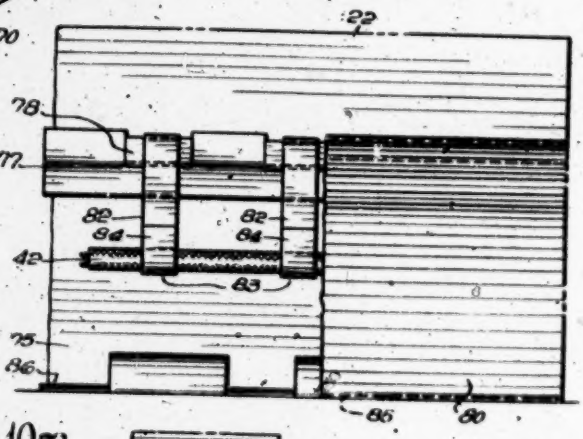


Fig. 9

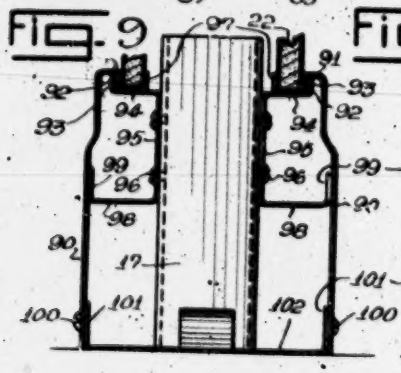
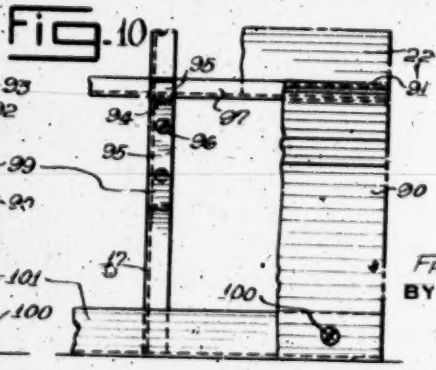


Fig. 10



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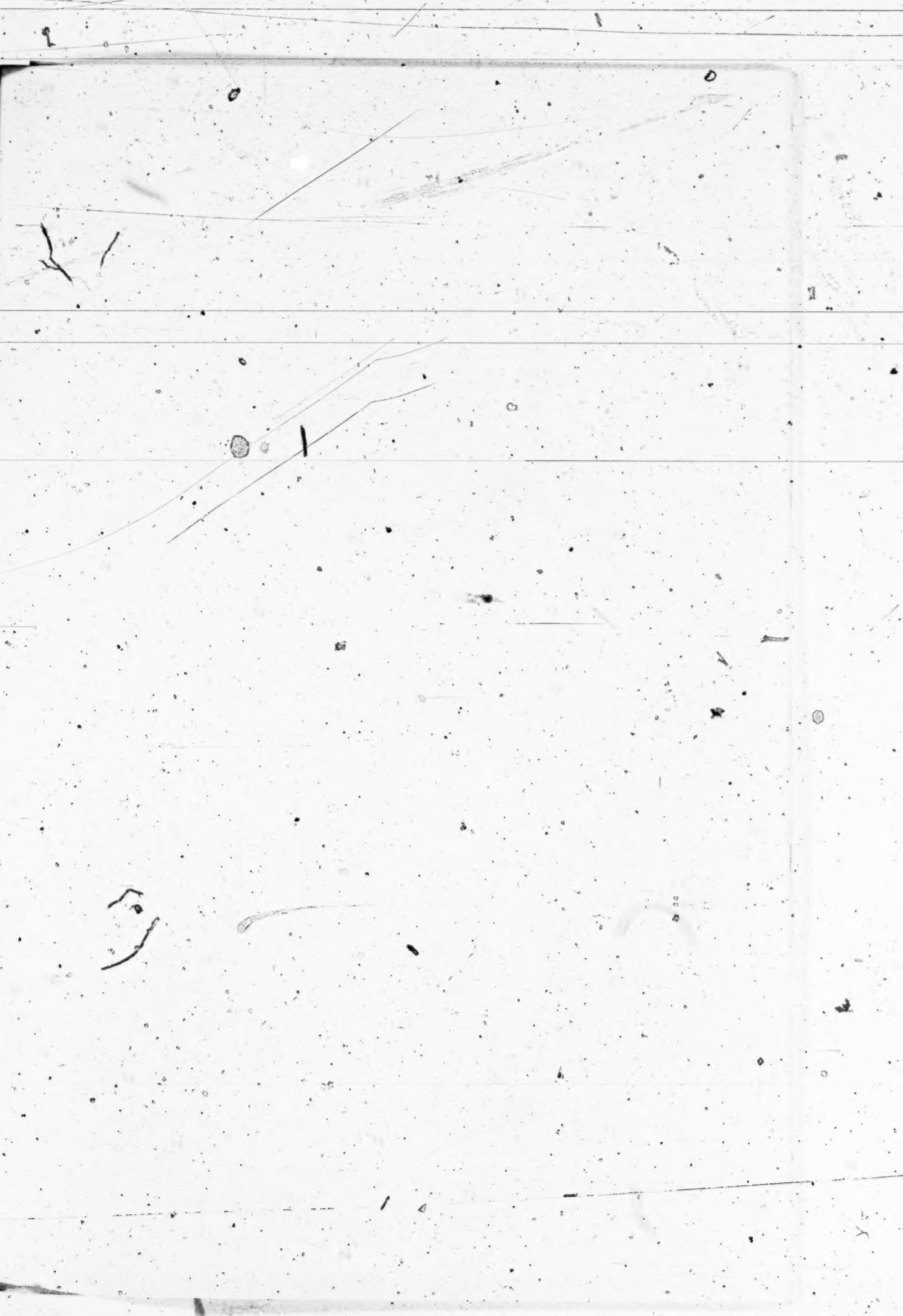

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BUILDING CONSTRUCTION

Original Filed June 27, 1932 3 Sheets-Sheet 3

Fig. 11

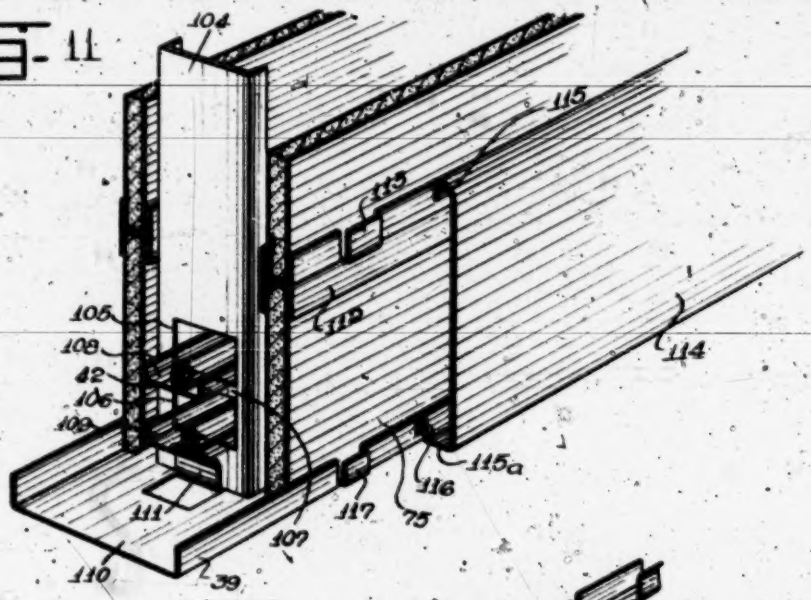


Fig. 12

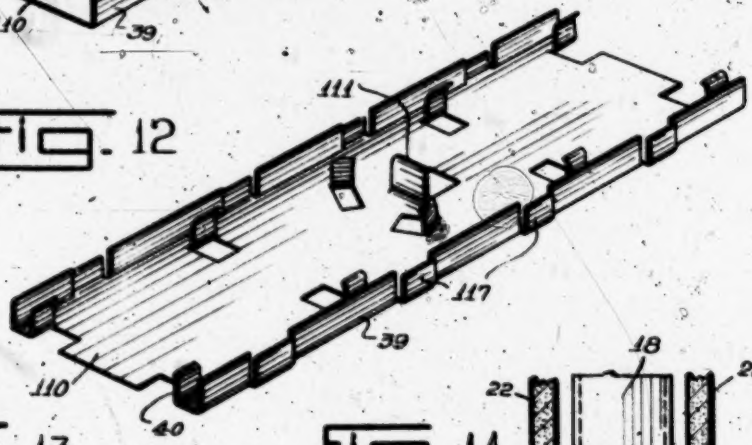


Fig. 13

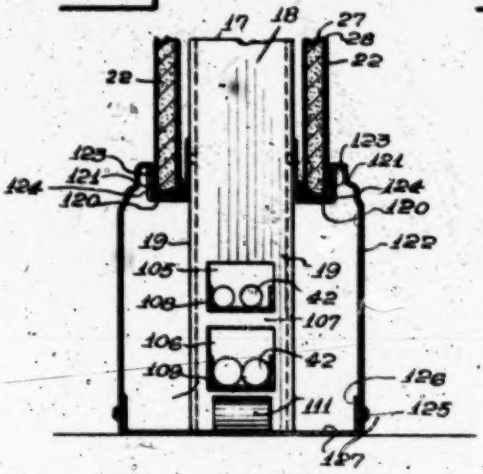
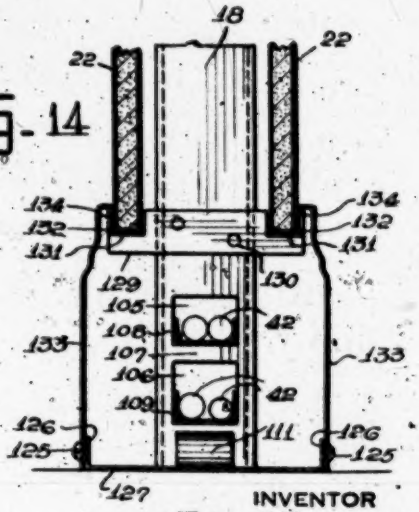


Fig. 14



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Patented Nov. 20, 1934 1,981,239

UNITED STATES PATENT OFFICE

1,981,239

BUILDING CONSTRUCTION

Fred A. Manske, Chicago, Ill., assignor to United States Gypsum Company, Chicago, Ill., a corporation of Illinois

Application June 27, 1932, Serial No. 619,535
Renewed May 4, 1934

10 Claims. (Cl. 72—115)

This invention relates to building construction, and has reference more particularly to fireproof walls and partitions employing metal studs and pre-formed building boards having the lower parts thereof concealed by a metal mop plate or base trim.

In the construction of walls and partitions employing metal studs and pre-formed building boards, such as those made primarily of gypsum, it is desirable to have an inexpensive metal mop plate for concealing the lower part of the partition and providing a space for receiving electric wires, since the entire wall construction, including the mop plate should be of simple construction and easily erected.

An object of this invention, therefore, is to provide a wall and partition construction which is fireproof and may be easily erected.

A further object of the invention is to provide a wall construction in which a metal mop plate of simple design is used as a base trim; also to improve building constructions in other respects hereinafter specified and claimed.

In my co-pending application, Serial No. 618,149, filed June 20, 1932, entitled "Wall construction", I have disclosed improvements in the general class of structures herein contemplated, and the present disclosure contains certain additional improvements.

Reference is to be had to the accompanying drawings forming a part of this specification, in which

Fig. 1 is a sectional, perspective elevation showing one form of my improved wall construction,

Figs. 2, 3 and 4 are sectional elevations of modified forms of wall construction,

Fig. 5 is a perspective view of a type of runner used in the construction shown in Fig. 4,

Figs. 6 and 7 are perspective, sectional elevations showing further modified forms of wall construction,

Fig. 8 is a fragmentary elevation of the wall construction shown in Fig. 7,

Fig. 9 is a sectional elevation of a further modified form of wall construction,

Fig. 10 is a fragmentary elevation of the construction shown in Fig. 9,

Fig. 11 is a sectional, perspective view of a further modified form of wall construction,

Fig. 12 is a perspective view of the base plate used in the construction shown in Fig. 11,

Fig. 13 is a sectional elevation showing a further modified form of wall construction, and

Fig. 14 is a sectional elevation through a still further modified form of wall construction.

In the construction of the wall, I prefer to use channel-shaped, steel studs 17 having web 18 and flanges 19 along each longitudinal edge of said web. The upper ends of the studs 17 are attached in any suitable way not shown to the framework of the building, and the lower ends of the studs are received and supported by a base plate 20 having upstanding integral tongues 21 struck out from the metal of the base plate, said tongues being so spaced as to closely fit the bottom of the studs 17. Pre-formed building boards 22 are connected to the stud flanges 19 by a combined runner and clip system. An H-shaped runner 23 is rolled from sheet metal and has inwardly turned reverse bent flanges 24 which are again bent outwardly at the center of the runner to form closely abutting flanges 25 which are again bent outwardly to form flanges 26 which, with flanges 24, form opposed channels for receiving the edges of the boards 22. The boards 22 may be gypsum boards comprising a cementitious core material 27 of gypsum, or other suitable composition, and having cover sheets 28 for enclosing both faces of the core material. The boards 22 may be formed of compressed fibers or any other suitable materials commonly used in the building industry.

In order to attach the runner 23 to the stud flanges 19, I provide clips 29 having inwardly turned flanges 30 conforming to the shape of the stud flange 19 and adapted to partially enclose the same. Said clips 29 are also provided with inwardly turned flanges 31 which are arranged to partially enclose the runner flanges 26 in such a way that the edges of the boards 22 press firmly against the flanges 31 and lock the runners in position relative to the clips 29 and studs 17.

One of the salient features of my invention consists in positioning the runners 23 transversely of the studs 17 and supporting said runners on narrow strips of building board 33, the lower edge of said board strips 33 being received between upstanding, spaced, integral tongues 34 struck from the base plate 20. In order to serve as a finishing trim for the bottom of the wall or partition, I provide a metal mop plate 35 having its upper edge inwardly turned to form a flange 36 which is then bent downwardly to form a flange 37, the latter engaging over one of the runner flanges 24 so as to be removably positioned between said flange 24 and the lower edge of the building boards 22. The outer edges of the base plate 20 are turned upwardly to form flanges 39, and integral tongues 40 struck upwardly from the plate 20 form channels with flanges 39 for the reception of the lower edge of the trim or

mop plate 35. The space between the mop plate 35 and the board strips 33 may be utilized if desired to contain electric wires 42, and outlet sockets 43 are provided in the mop plate 35 for attachment with electrical fixtures, lamps and the like. It will be seen that by positioning the runners 23 horizontally, a convenient method of attachment of the mop plate 35 is provided so that the mop plate may be removed at any time if it is desired to inspect or repair the electric wiring or add new wires.

The form of construction shown in Fig. 2 varies from that of Fig. 1, in that a metal plate 44 is placed over the building board strips 33 and carries an angle shaped shelf 45 for dividing the space between a mop plate 46 and the metal plate 44 into two compartments, thus dividing the electric wires 42 into two groups, such as telephone wires and light wires, and guarding against a short circuit.

The form of construction shown in Fig. 3 differs from that shown in Fig. 2 in that an inwardly bent flange 48 is formed on the bottom edge of a mop plate 49, said flange 48 being again bent upwardly to form flange 50 which lies flush against the metal plate 44. The mop plate 49 is made somewhat narrower than those previously described so as to permit wooden flooring 51 to be placed underneath the mop plate, the lower edge of the mop plate being held in position by means of a wooden molding 52 held in position by nails 53.

In the form of construction shown in Fig. 4, runners 55 for supporting the lower edge of the wallboard 22 are slitted, and outwardly extending tongues 56 are formed on said runners to give clearance space for receiving a downwardly extending flange 57 formed on the upper edge of a mop plate 58. Tongues 59 similar to the tongues 56 are formed on the bottom of the runner 55 so as to form a clearance space for the reception of the upper end of a plate 60 which carries an angle shelf 61 for holding the electric wires 42. The bottom edge of plate 60 has an outwardly extending flange 62 which terminates in an upwardly extending flange 63, the latter bearing against the inner, bottom edge of the mop plate 58 for supporting the same. A wooden molding 64 may be provided outside the mop plate 58 for holding the bottom edge thereof firmly against the flange 63. A more detailed illustration of the runner of Fig. 4 is shown in Fig. 5.

In the form of construction shown in Fig. 6, a runner 66, resembling the runner shown in Fig. 1, is reversed in position so that the single wall flanges 67 are on the outside of the wall and engage a downwardly extending flange 68 formed on the upper edge of a mop plate 69. The lower edge of the mop plate 69 is provided with an inwardly extending flange 70 which terminates in an upwardly extending U-shaped flange 71, the latter engaging over an upwardly extending flange 72 formed on a base plate 73. The U-shaped flange 71 also serves to act with upwardly extending tongues 74 struck from the base plate 73, to retain the bottom edge of wallboard strip 75.

In the form of construction shown in Fig. 7, a runner 77 is provided for receiving the bottom edge of wallboard 22 and L-shaped flanges 78 are struck out therefrom at intervals forming upwardly extending channels for receiving downwardly extending flanges 79 formed along the upper edge of a mop plate 80. The flanges 78 also serve to engage a U-shaped hook 81 which is formed on the upper end of a hanger strip 82. An outwardly extending section 83 is formed on the bottom end of the hanger 82 for supporting the electric wires 42, and the section 83 terminates in an upwardly extending tongue 84 for engaging the inner face of the mop plate 80. The lower edge of the mop plate 80 has an inwardly bent flange 85 which is arranged to slide under offset flanges 86 formed on a base plate 87 so that the flange 85 is retained between the flange 86 and floor 88.

In the form of construction shown in Fig. 9, a mop plate 90 is provided with an inwardly extending flange 91 terminating in a downwardly extending flange 92. Flange 92 hooks over an upstanding flange 93 formed on a hanger strip 94, body 95 of said hanger strip being conveniently attached, as by screws 96, to one of the stud flanges 19. Channel strips 97 are carried by the hanger flanges 94 to receive the bottom edges of the wallboard 22. The lower end of the hanger strip 95 is bent outwardly to form a section 98 which terminates in an upwardly extending flange 99, the latter engaging with the inner face of the mop plate 90. The lower edge of the mop plate 90 may be secured, as by screws 100, to an upstanding flange 101 formed on the outer edge of a base plate 102.

In the preferred form of construction shown in Fig. 11, studs 104 are provided near the lower end thereof with apertures 105 and 106 separated by strut 107. A channel 108 passes through the aperture 105 and is supported on the strut 107, and a channel 109 passes through the aperture 106, being supported by the web of the channel. Electric wires 42 may be carried by both of the channels 108 and 109, the telephone wires being conveniently separated from the light wires by said channels. The lower ends of studs 104 are supported by a base plate 110 having upstanding integral tongues 111 struck therefrom for positioning the studs. Runners 112 are provided with outstanding, hook-shaped tongues 113, and a mop plate 114 is provided with a downwardly extending flange 115 along its upper edge which engages the hook tongues 113. The bottom edge of mop plate 114 is provided with an inwardly extending flange 115a terminating in an upwardly extending U-shaped flange 116 which engages over outstanding tongues 117 struck from the edges of the base plate 110. A more complete view of the base plate used in the construction shown in Fig. 11, is shown in Fig. 12.

In the form of construction shown in Fig. 13, L-shaped brackets 120 are secured to stud flanges 19. Channel strips 121 are carried by the L-shaped brackets 120 for supporting the lower edges of the wallboards 22. A mop plate 122 is provided at its upper edge with a downwardly extending flange 123 which engages within an upstanding leg 124 formed on the bracket 120. The lower edge of mop board 122 is secured as by screws 125 to an upwardly extending flange 126 formed on the outer edge of a base plate 127.

The form of construction shown in Fig. 14 is similar to that shown in Fig. 13 except that the brackets 120 are replaced by bars 129 which are secured transversely to the webs 13 of the studs by rivets or spot welding 130. The outstanding ends of bars 129 are provided with recesses 131 for receiving the channel strips 132 which carry the lower edges of the wallboards 22. The mop plate 133 is provided along its upper edge with a downwardly extending flange 134 which engages within the brackets and the bar recess 131. It will be noted that in both forms of the invention shown in Figs. 13 and 14, the narrow strip of wall-

board 75 is completely eliminated which distinguishes these forms of construction from those previously described.

I would state in conclusion that while the illustrated forms of the invention which I have described represent certain practical embodiments, I do not wish to limit myself precisely to these details, since manifestly, the same may be considerably varied without departing from the spirit of the invention as defined in the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a wall construction, a plurality of spaced vertical studs, a base plate supporting the lower ends of said studs, a runner secured transversely to said studs and having opposed channels, wallboards secured to said studs and having the lower edges thereof supported in a channel of said runner, a narrow strip of wallboard extending between said runner and base plate, and a metal mop plate secured adjacent said board strip and serving as a base trim.

2. In a wall construction, a plurality of studs in spaced, parallel relation, a plurality of wallboards secured to said studs including a narrow strip of board adjacent the bottoms of said studs, and a metal mop plate secured to the wall structure and serving as a trim to conceal said narrow strip of board.

3. In a wall construction, a plurality of studs supported on a floor in spaced, parallel relation, a plurality of wallboards secured to said studs, channel strips secured to said studs and supporting the lower edges of said boards, and a metal mop plate secured between said channel strip and said floor and serving as a finishing trim.

4. In a wall construction, a plurality of studs supported on a floor in spaced, parallel relation, a plurality of wallboards secured to said studs, channel strips secured transversely to said studs and supporting the lower edges of said boards, a metal mop plate extending between said channel strip and said floor and serving as a finishing trim, and a flange formed on said mop plate and engaging said channel so as to connect said plate to said channel.

5. In a wall construction, a plurality of studs supported on a floor in spaced, parallel relation, a plurality of wall boards secured to said studs, a channel strip secured transversely to said studs and supporting the lower edges of said boards, a metal mop plate secured between said channel strip and said floor and serving as a finishing trim, and a shelf behind said mop plate for supporting electric wires.

6. In a wall construction, a plurality of studs supported on a floor in spaced, parallel relation, a plurality of wallboards secured to said studs, means secured to said studs for supporting the lower edges of said boards spaced apart from said floor, a metal mop plate secured between the lower edge of said boards and said floor and serving as a finishing trim, each of said studs being provided with an aperture for the passage of electric wires, and an elongated strip passing through the apertures of successive studs for supporting said electric wires.

7. In a wall construction, a plurality of, studs supported on a floor in spaced, parallel relation, a plurality of wallboards secured to said studs, a channel strip secured transversely to said studs for supporting the lower edges of said boards spaced apart from said floor, a metal mop plate secured between said channel strip and said floor and serving as a finishing trim, outstanding ears formed on said channel strip, and a flange formed on the upper edge of said mop plate and engaging behind said ears for connecting said plate to said channel strip.

8. In a wall construction, a plurality of studs supported on a floor in spaced, parallel relation, a plurality of wallboards secured to said studs, a channel strip secured to said studs and supporting the lower edges of said boards, a base plate adjacent the bottoms of said studs, said plate having an upstanding flange formed along an edge thereof, and a metal mop plate secured to said channel strip and to said upstanding flange and serving as a finishing trim.

9. In a wall construction, a plurality of studs in spaced, parallel relation, a base plate supporting the lower ends of said studs on a floor, an upstanding flange formed on an edge of said base plate, a channel strip secured transversely to said studs and spaced apart from said floor, wallboards secured to said studs and having the lower edges thereof received in said channel strip, a relatively narrow strip of wallboard extending between said channel strip and said flange on said base plate, a mop plate secured between said channel strip and said base plate and serving as a finishing trim, and an electric wire passing through apertures formed in said studs behind said mop plate.

10. In a wall construction, a plurality of studs supported in spaced, parallel relation on a floor, a cross-bar secured near the bottom of each stud, a channel strip carried by the outstanding end of each bar, wallboards secured to said studs and having the lower edge thereof, supported by said channel strip, and a metal mop plate secured between said channel strip and said floor and serving as a finishing trim.

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93 Nov. 20, 1934. W. M. McNEIL 1,981,240

WALL CONSTRUCTION

Filed Aug. 17, 1932 2 Sheets-Sheet 1

Fig. 1

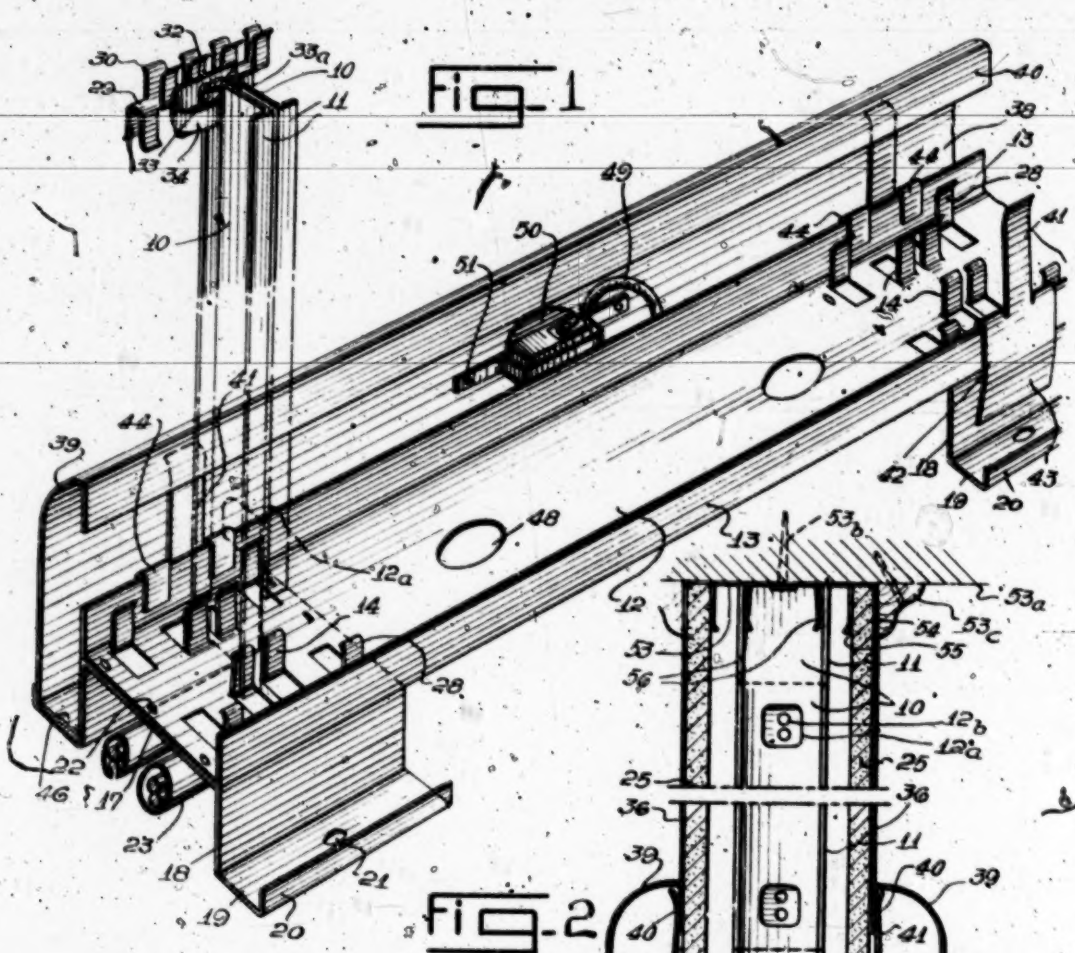


Fig. 2

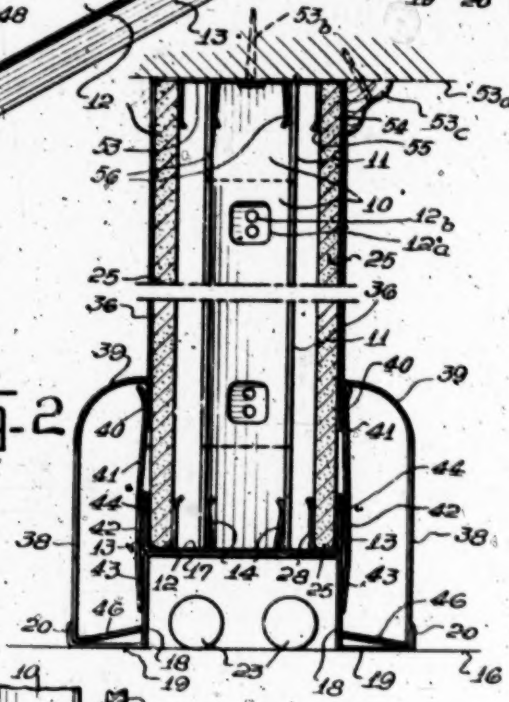


Fig. 3

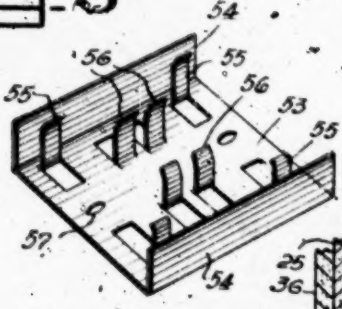
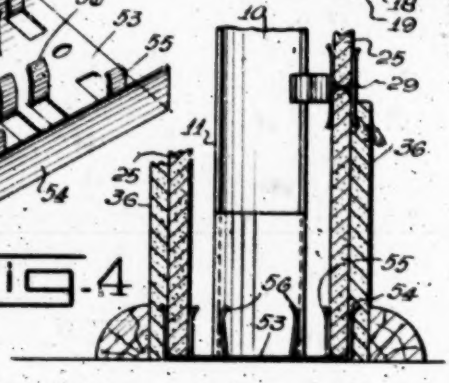


Fig. 4



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WALL CONSTRUCTION

Filed Aug. 17, 1932 2 Sheets-Sheet 2

Fig. 5

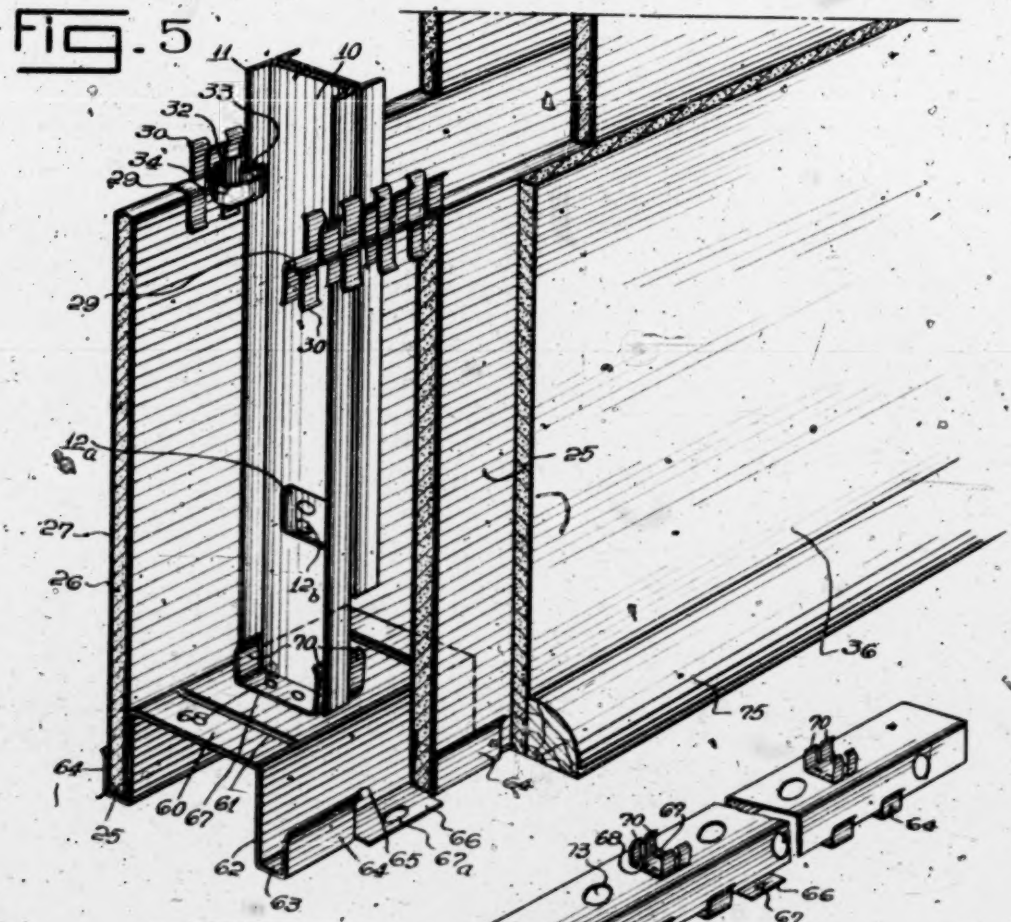


Fig. 6

Fig. 7

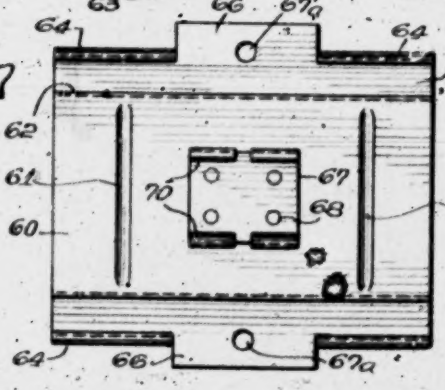
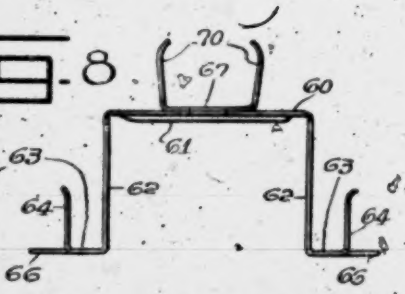


Fig. 8



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Patented Nov. 20, 1934 1,981,240

UNITED STATES PATENT OFFICE

1,981,240

WALL CONSTRUCTION

William M. McNeil, Chicago, Ill., assignor to United States Gypsum Company, Chicago, Ill., a corporation of Illinois

Application August 17, 1932, Serial No. 629,109

22 Claims. (Cl. 72—46)

This invention relates to building constructions, and has reference more particularly to wall constructions in which materials of a fireproof nature are used.

In the construction of the walls of buildings, partitions and the like, it is desirable to form said walls of materials of a fireproof nature. In the construction of such a wall it is desirable to use steel studs and to provide a convenient means for supporting the bottom of the studs. The wall construction should also provide convenient means for running concealed electric light and telephone wires through the partition.

An object of this invention, therefore, is to provide a wall or partition structure composed largely of fireproof materials.

Another object of the invention is to provide a wall construction in which steel studs are used and convenient means are provided for supporting the studs so as to enable the wall structure to be easily and quickly erected with the minimum of labor and expense.

A further object of the invention is to provide a wall structure of the class described in which provision is made for passing electric wires along the partition; also to improve building constructions in other respects hereinafter specified and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification in which

Fig. 1 is a perspective view of portions of the wall and partition structure,

Fig. 2 is a sectional elevation through the wall construction,

Fig. 3 is a perspective view of one of a modified form of plate used for supporting the lower ends of steel studs,

Fig. 4 is a sectional view of a modified form of partition construction, using the plate shown in Fig. 3,

Fig. 5 is a sectional perspective view of a further modified form of wall structure,

Fig. 6 is a perspective view of a modified form of stud-supporting runner,

Fig. 7 is a still further modified form of stud-supporting plate shown in Fig. 5, and

Fig. 8 is an end elevation of the partition-supporting member shown in Figs. 5 and 7.

In erecting my improved wall construction, I preferably use steel studs 10, each composed of a pair of channel strips having their webs spot-welded together in a spaced, back-to-back position so as to form a substantially H shaped stud having outstanding flanges 11. The lower ends of the studs 10 are supported upon a U shaped channel strip 12 having an upstanding flange 13 formed along each edge thereof. Two pairs of upstanding integral lugs 14 are struck from the metal of the channel strips 12, said lugs resiliently engaging the webs and flanges of the studs 10 so as to prevent movement of the bottom end of the stud in any horizontal direction. The channel strips 12 are supported in a horizontal position, spaced apart from the upper surface of a floor 16, by means of U shaped channel clips 17 having downwardly extending legs 18. An outstanding flange 19 is formed on the bottom of each of the legs 18, and said flanges terminate in upwardly extending flanges 20 which lie in spaced, parallel relation to the legs 18. The flanges 19 are preferably provided with perforations 21 so that said flanges may be nailed to the floor. The clips 17 are secured to the web of the channel strips 12, by spot-welding 22, rivets or other suitable means, said clips 17 being spaced along the channel strips 12 at intervals of say two feet, and provide a substantial space under the strips 12 so that electric light and telephone conduits or pipes 23 may be positioned in said space.

The wall proper is composed of wall panels 25 which are preferably formed of gypsum board having a cementitious gypsum core material 26 faced on both surfaces with paper cover sheets 27. However, fiber board or any other desired type of wall panel may be used in the construction. The bottom edges of the board 25 are supported on the webs of the channel strips 12, and are positioned between the upstanding flanges 13 and upstanding integral lugs 28, which are struck from the metal of the channel strips 12. The upper edges of the wall panels 25 may be secured to the stud flanges 11 by means of attaching clips 29 having opposed integral lugs 30 formed therefrom, and forming opposed channels for the reception of adjoining wall panels. Spring clips 32 may be spot-welded at one end to the clips 29, and the other end of the clips 32 may be provided with channel shaped flanges 33 and 33a for embracing the opposed flanges 11 of the studs. The clips 32 are provided with a resilient loop 34 so that the wall panels 25 are resiliently connected to the stud, thus providing a sound-proof structure and one in which cracks do not form in a layer of plaster 36, which may be applied to the outer face of the wall panels 25 if desired.

The studs 10 are preferably composed of a short channel and a long channel having pressed out

pads 12a in their webs to space the webs apart about 1/8" to give clearance for the clip flange 33a between the webs. Spot welding 12b of the webs is done at the pads 12a. The short channel of a stud may extend within 1½" of one end of the long channel and within 7½" of the other end of the long channel. The long end of the long channel may be sawed off as much as 6" to suit job conditions. The short channel gives added stiffness necessary for proper sound-proofing results when using the resilient clips. Studs of varying lengths can be supplied when variations greater than 6" are required. If desired wall panels made of metal lath and plaster may be used, and the metal lath may be wired directly to the studs.

A metal trim plate 38 is provided adjacent the lower part of the wall structure, said plate having an arcuate inwardly turned upper flange 39, which terminates in a downwardly extending flange 40. The flange 40 is yieldingly pressed flush against the outer face of the wall panel 25 by means of a spring finger 41, which is formed on a clip 42, the lower end of said clip 42 being provided with an inwardly tapered flange 43, which bears at its lower edge against the clip leg 18. A pair of integral flanges 44 are bent back on the plates 42 in U shaped form so as to embrace the upper edge of the channel flange 13 and form a fulcrum about which the fingers 41 and flanges 43 act to resiliently press the flanges 40 firmly against the face of the wall panels 25. The lower edge of the trim plates or mop boards 38, is provided with an inwardly extending flange 46 which tapers slightly upwardly, the inward edge of said flange 46 engaging one of the clip legs 18 to firmly wedge the bottom of the trim plate between said clip leg 18 and the upwardly extending flange 20 and thus form a neat, rigid, wall structure. Openings 48 are provided in the channel strips 12 at intervals so that leads may be brought upwardly through said openings if desired. Electric conduits 23 have leads 49 attached to electric light plug receptacles 50 which are secured to the inside surface of the metal trim plates 38 by means of screws 51.

In the form of device shown in Fig. 3, a channel shaped clip or plate 53 is shown for supporting the bottom ends of steel studs 10 on a floor when no provision is to be made for passage of electric light wires through the partition. In this form of structure, the clip 53 is provided with an upstanding flange 54 on opposite edges thereof, and is provided with upstanding integral lugs 55 which are spaced apart from the corresponding flange 54 so as to retain the bottom edges of the wallboards 25 in position. Upstanding integral lugs 56 are struck from the metal of the clips 53 and are arranged in pairs so as to engage the bottom end of a steel stud 10 in the same manner as lugs 14. Holes 57 are provided in the clips 53 for attachment of the clips to a floor surface by means of nails, screws or the like. The clips 53 are also preferably used to support the upper ends of the studs and wall panels (Fig. 2). For this use, they are attached to a ceiling surface 53a by means of nails 53b. Ornamental moldings 53c may be secured to the ceiling surface at the junction with the vertical walls.

In the form of device shown in Figs. 5, 7 and 8, a U shaped clip 60 of comparatively short length is used for supporting each of the studs 10. The web of the clip 60 is reenforced by means of pressed beads 61, and said clip has downwardly extending legs 62, on the lower edge of which are outstanding flanges 63 terminating in upstanding flanges 64 having top edges 65 which flare outwardly. The wall panels 25 are received between the legs 62 and flanges 64 so that the bottom edges of the boards are supported directly upon the floor with only the flanges 63 intervening between the bottoms of the boards and the floor. Each of the flanges 63 has an outstanding lug 66 which is provided with an aperture 67a for receiving a nail to attach the clip 60 to the floor. A plate 67 is attached to the web of the clip 60 by spot-welding 68, rivets or the like, and said plate 67 is provided with upstanding integral lugs 70 which are arranged in pairs similar to the arrangement of lugs 14 for engaging the bottom end of a stud 10. The clips 67 also serve to re-enforce the web of the clips 60. If desired, the clips 60 may be in the form of an elongated runner 72, as shown in Fig. 6, in which case the runner will be provided at intervals with apertures 73 for the purpose of permitting electric leads to be brought out through said apertures from the electric conduits enclosed within the runner. After the wallboards 25 are in position, the layer of plaster 36 may be applied to the outer surface of the wallboard, and the bottom of the plaster coating may be finished off with a quarter-round 75 of wood or the like.

I would state in conclusion that while the illustrated examples constitute practical embodiments of my invention, I do not wish to limit myself precisely to these details, since manifestly, the same may be considerably varied without departing from the spirit of the invention as defined in the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a building construction, a plate adapted to be supported on a floor, integral, spaced lugs struck from said plate and extending upwardly in pairs, a metallic building stud positioned on said plate and engaged by said lugs so as to prevent lateral movement of said stud, upstanding flanges formed on opposite edges of said plate, integral lugs on said plate in spaced parallel relation to said flanges, wall boards having the lower edges thereof received between said flanges and said last mentioned lugs, and means for securing said wall boards to said studs.

2. In a building construction, a U-shaped runner, means along the edges of said runner for engaging the lower edge of vertically extending wall panels, means for supporting said runner on a floor in spaced parallel relation thereto, electric wires extending longitudinally below said runner, metallic studs supported in a vertical position by said runner, a mop plate associated with said runner, and with the bottoms of said panels and studs, and means for connecting the tops of said panels to said studs.

3. In a building construction, an elongated, U-shaped metal runner having upstanding flanges formed along the longitudinal edges thereof, wall panels having their lower edges supported by said runner inside said flanges, metallic, vertically extending studs having their lower ends supported by said runner, clips engaging said flanges, a mop plate, said clips having parts engaging the upper part of said mop plate so as to press said mop plate against a wall panel, and means for supporting said runner on a floor.

4. In a building construction, an elongated metal runner having upstanding flanges formed along longitudinal edges thereof, wall panels having their lower edges supported by said runner

inside said flanges, a U-shaped clip secured to said runner and having downwardly extending legs resting on a floor surface, channel-shaped members formed along the bottom edges of said legs, a metallic mop plate having an inclined flange along the lower edge thereof, said inclined flange wedging into position in one of said channel-shaped members so as to secure the bottom of said mop plate in position, and means associated with said runner flanges for holding the upper edge of said mop plate in position.

5. In a building construction a U-shaped metal runner having downwardly extending legs supported by a floor surface, outstanding and upstanding flanges formed along the bottoms of said legs so as to provide channels, wall panels having the lower edges thereof supported in said channels, vertically extending studs having their lower ends supported on said runner, and means for connecting said panels to said studs.

6. In a building construction, a plate adapted to be supported on a floor, integral, spaced positioning lugs formed on said plate intermediate the edges thereof and extending upwardly in spaced relation, a building stud having the lower end thereof supported on said plate between said lugs, and wall panels secured to said stud and having their lower edges supported by said plate.

7. In a building construction, a U-shaped metal runner, means along the edges of said runner for engaging the lower edges of vertically extending wall panels, means for supporting said runner on a floor in spaced, parallel relation thereto, electric wires extending longitudinally below said runner, vertically extending, metallic studs supported by said runner, and means for connecting the upper edges of said panels to said studs.

8. In a building construction, a metal runner supported on a floor in substantially horizontal position, vertically extending, metal studs having their lower ends supported on said runner, wall panels secured to said studs and having their lower edges supported by said runner, a metal mop plate detachably secured to said runner along the bottom edge of said plate, and means associated with said runner for resiliently pressing the upper part of said mop plate against a wall panel.

9. In a building construction, a metal runner supported on a floor in substantially horizontal position means for spacing said runner apart from said floor an electric wire positioned longitudinally below said runner, wall panels and studs supported by said runner, a metal trim plate positioned adjacent said runner and panels, an electric outlet socket mounted on said trim plate, and an electric lead passing from said wire, and connected to said socket.

10. In a building construction, a plurality of spaced, vertically extending studs composed of channels having the webs thereof secured together, one channel of each stud being longer than the mating channel, means for supporting said studs, and wall panels resiliently connected to said studs.

11. In a building construction, a plurality of spaced, vertically extending studs each of said studs being composed of a pair of channels having the webs thereof secured together, one channel having an end protruding beyond the end of the mating channel, and a plate supporting said protruding stud end, said plate having outwardly extending lugs engaging said protruding stud end.

12. In a building construction, a pair of channel strips having webs, pressed out spacing pads formed in one of said channels, and means associated with said pads for securing said channels together to form a stud.

13. In a building construction, a U-shaped metal member having a web and downwardly extending legs resting at the lower ends thereof on a supporting structure, electric wires extending longitudinally between the legs of said member, a vertically extending stud supported on the web of said member, means associated with said web for engaging and defining the position of the end of said stud on said web, wall panels having the lower edges thereof secured to said member and extending parallel to said stud, and means for securing said panels to said stud.

14. A device of the character described, comprising a metallic member adapted to define the position of a wall comprising stud elements and wallboard, said member having means for engaging the end of a stud, means for engaging the edge of a wallboard panel, and means for maintaining the member in spaced relation to a surface adjacent with said member is positioned, said last mentioned means being of a character to leave a substantially unobstructed space below said member, whereby conduits or the like may be conveniently disposed below said member.

15. A metallic base member, comprising a web portion, leg portions at an angle to said web and adapted to maintain said web in spaced relation to a floor or other surface whereby to permit conduits or the like to be positioned between said web and said surface, means on said web for engaging the end of a wall stud, means for engaging the edge of a wallboard panel, and means for attaching said member to said surface.

16. In a structure adapted for wall construction, a channel-like member of substantial length, means intermediate the edge flanges of said member for engaging studs and the edges of wallboard panels, and means having substantial leg elements extending oppositely to said edge flanges, said leg elements being adapted to engage a supporting surface and space said member substantially from said surface whereby to permit conduits or the like to be placed between said member and supporting surface.

17. In a structure adapted for wall construction, a metallic member having independent means adapted to engage and define the relationship of wall stud means and wall panel means, means for maintaining said member in spaced relation to a floor or other surface whereby conduits or the like may be disposed between said member and said surface, and means on said last mentioned means for engaging a mop plate to be disposed adjacent said member.

18. In a structure of the class described, a metallic member comprising a web portion, angularly disposed flange means at the edges of said web, and a plurality of lugs intermediate said flange means, certain of said lugs being positioned to engage the edge of a building panel adapted to be supported by said member, and other of said lugs being positioned to engage the end of a stud element likewise adapted to be supported by said member.

19. In a structure for wall construction, a metallic member of substantial length and comprising a web adapted to be disposed in a horizontal plane, means for maintaining said web in substantially spaced relation to a supporting surface whereby conduits or the like may be placed between said web and said surface, said member having apertures formed therein for electric leads

or the like, and means on said web for engaging and defining the position of a stud.

20. In a structure adapted for wall construction, a metallic member comprising a web portion, means for maintaining said web in substantially spaced relation relative to a floor or other surface against which said member is adapted to rest, means for engaging the end of a stud, and reinforcing beads pressed in said web to reinforce the same adjacent said stud engaging means.

21. A device for wall construction and adapted to be fixed adjacent a supporting surface in a building, comprising a metallic member of substantial face area and having angularly disposed edge flanges, means on one face of said member intermediate said flanges for resiliently frictionally engaging and defining the position of means such as a wall stud to be maintained in position by said device, and means at the face of said member opposite said engaging means for maintaining said member in substantially spaced relation to the supporting surface.

22. In means for wall construction, a metallic member adapted to be fixed adjacent a building surface and comprising a web portion, and a plurality of spaced, integral lugs formed on said web for engaging the end of a stud to maintain the stud in position, said lugs being formed to stand laterally from the plane of said web and to provide frictional contact with said stud end.

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99 Dec. 18, 1934. C. COLLINS 1,985,150

METALLIC STUDDING AND PLATE

Filed Dec. 27, 1932

Fig. 1.

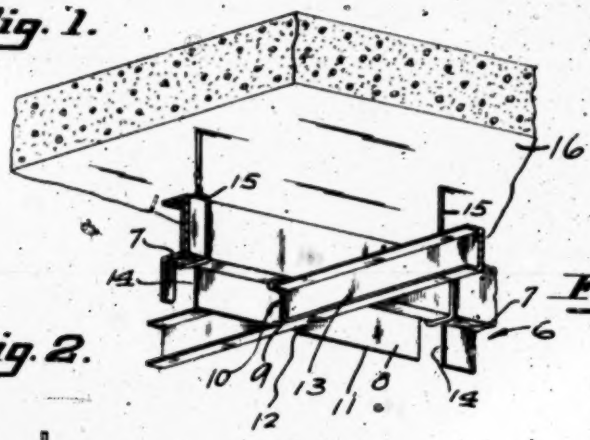


Fig. 2.

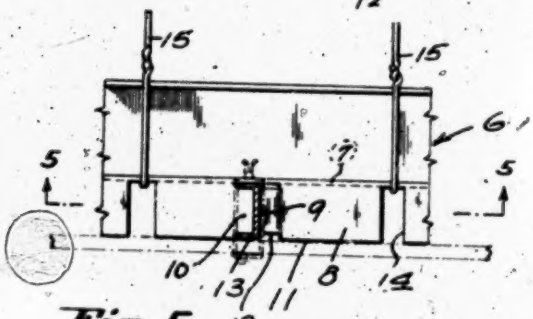


Fig. 3.

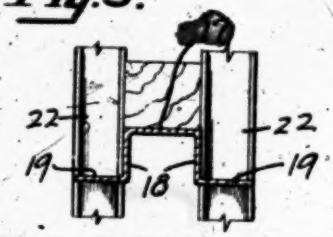


Fig. 4.

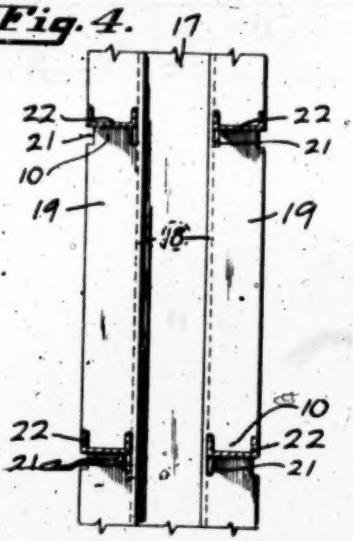


Fig. 5.

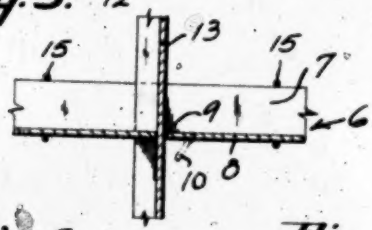


Fig. 6.

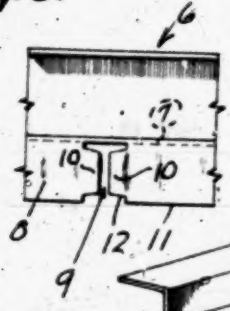


Fig. 7.

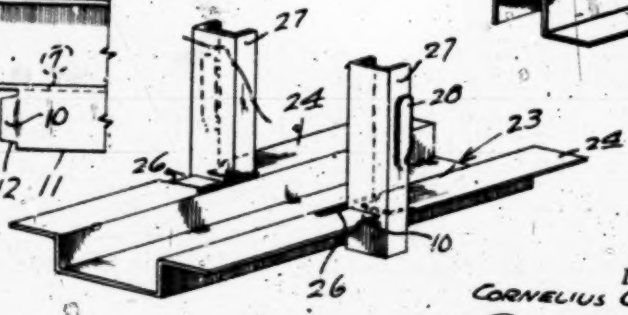
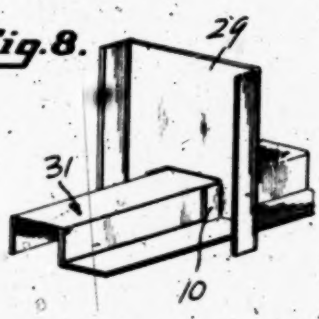


Fig. 8.



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Patented Dec. 18, 1934

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UNITED STATES PATENT OFFICE

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METALLIC STUDDING AND PLATE

Cornelius Collins, San Francisco, Calif.

Application December 27, 1932, Serial No. 648,867

13 Claims. (Cl. 72—118)

This invention relates to a frame construction for walls, floors, suspended ceilings or the like, and has for its object to simplify and improve the manufacture, assembly and durability of the same.

A more specific object of this invention is the provision of a novel form of connection and securing of the channels, or other supporting means to which the plaster receiving medium is secured onto the studs or joists of the frame.

Other objects and advantages are to provide a metallic studding that will be superior in point of simplicity, inexpensiveness of construction, positiveness of operation, and facility and convenience in use and general efficiency.

In this specification and the annexed drawing, the invention is illustrated in the form considered to be the best, but it is to be understood that the invention is not limited to such form, because it may be embodied in other forms; and it is also to be understood that in and by the claims following the description, it is desired to cover the invention in whatsoever form it may be embodied.

This invention is clearly illustrated in the accompanying drawing wherein

Fig. 1 is a perspective view of a fragment of a ceiling illustrating the connection of the ceiling suspension frame.

Fig. 2 is a fragmental view of a ceiling suspension frame structure constructed in accordance with my invention.

Fig. 3 is a fragmental cross sectional view of a wall frame structure.

Fig. 4 is a fragmental view of a metallic studding with the transverse channels thereon.

Fig. 5 is a sectional view of the ceiling suspension frame structure, the section being taken on the line 5—5 of Fig. 2.

Fig. 6 is a fragmental detail view of one of the structural elements of the frame, showing the slotted wing flange thereof.

Fig. 7 is a perspective view of a fragment of the frame showing one of said elements used as a base plate; and

Fig. 8 is a fragmental perspective view of a modified base arrangement for the frame structure.

In carrying out my invention, I make use of a supporting element 6 having a channel cross section, from the leg 7 of which extends outwardly a wing flange 8, on the free edge of the leg 7. In the wing flange 8 is cut a substantially I shaped transverse slot 9 extending from the edge 11 of the flange 8 to the leg 7 of the element 6. The outer longitudinal branch 12 of the slot 9 is formed in the shape of a cut away recess in the edge 11. The portions of the flange 8 between the parallel ends of the slot 9 form retaining flanges 10.

A transverse channel 13 of substantially U-shaped cross section is inserted into the slot 9 and is held thereby at right angles to the element 6. Inasmuch as the slot 9 is I shaped, either side of the slot 9 conforms to the channel 13, so that the said channel 13 may be held therein facing toward either one of the ends of the element 6, whereby the structure is rendered invertible. The outer side of the channel 13 is held in the recess 12 flush with the edge 11.

The wing flange 8 may be continuous throughout the length of the element 6. In the event the frame structure is used for a suspended ceiling as shown in Fig. 1, the wing flange 8 is cut away at regular intervals as at 14, so as to allow the tying of a suspension wire 15 around the channel proper of the element 6, which wire 15 is fixedly suspended from the floor or ceiling structure 16. In this manner an entire frame is readily assembled, and suspended as shown, without the use of any clamps or other connecting instrumentalities outside of the structural elements 6 and the transverse channels 13. The plaster receiving medium is readily tied onto the transverse channels 13.

When the frame is used in a wall, and it is desired to use the same frame for a double wall, I provide a stud 17 of channel cross section, from each leg 18 of which extends outwardly a wing flange 19. Each wing flange 19 has I shaped retaining slots 21 formed therein, in which are supported transverse channels 22 of the structure heretofore set forth. It is to be noted that the slots 9 as well as the slots 21 are equally spaced from each other on all of the respective structural elements so as to be in alignment when the frame is assembled, to support the respective transverse channels. The slots 21 conform to the cross sectional shape of the transverse channels 22 both when the said channels 22 are assembled to face with their legs upwardly or downwardly, hence it does not require particular care to set up the studs with right end up, because the channels 22 can be assembled in any vertical position of the studs. The plaster receiving medium can be readily tied to the opposite channels 22.

As shown in Fig. 7, the same wing flanged plate is also utilized as a base plate 23, in the wing flanges 24 of which are formed I slots 26, in which fit channel studs 27 in the aforementioned manner. If so desired, the outside legs of the channels 13, 22 or 27 are provided with prongs 28

whereby the plaster receiving medium may be held in place without tying the same. It is preferable however, to utilize the spaced transverse members, or the spaced studs to tie the plaster receiving medium, such as plaster lath, or plaster board, on the frame.

In all of the forms the two sets of structural elements are held together in fixed angular relation by the use of slots in one or more wing flanges of each supporting element of one set, which slots conform to the cross section of the elements of the other set. The slots are also adapted to receive the elements of the second set in either one of two opposed positions. There are no other means of connection required to hold the frame together.

In the form shown in Fig. 8, the studding is formed of a wide channel 29, the end of which is cut away and flanged to fit over a winged base channel 31 or vice versa, to be held in place thereby.

It will be recognized that a simple frame structure is provided, the structural elements of which are held together, without the use of expensive and bulky clamps and the like structures; the connection and setting up of structural elements, constructed in accordance with my invention, does not require any particular skill, or adjustment, or mechanical attachment; it facilitates the securing of the plaster receiving medium on the frame, therefore it readily lends itself to efficient and economical application in building structures.

It is to be also noted that in order to facilitate assembly of the frame structure, one, or both of the retaining flanges 10 can be bent outwardly as shown in Fig. 5, whereupon the channels 13 may be inserted bodily into the aligning slots. Then by bending the flanges 10 back to the original position thereof, the same engage the channels 13 and securely hold the same in place. The same operation is performed in connection with all the various types of frame structures, in which the manner of connection herein described is utilized.

Having thus described this invention, what I claim and desire to secure by Letters Patent is:

1. In combination a flanged structural element, and a channel member disposed at an angle to the said element; a flange of said element having a transverse slot therein to conform to the cross section of the channel to hold the said elements in angular relation, an end of said slot extending to the edge of the flange, and a recess formed in said edge to accommodate the outer leg of the channel, the recess being of such depth as to hold the said outer leg of the channel flush with the edge of the flange.

2. In combination a flanged structural element, and a channel member disposed at an angle to the said element; a flange of said element having a transverse slot therein to conform to the cross section of the channel to hold said elements in angular relation, said slot being I shaped to conform to the channel cross section in opposite directions, the outer end of the slot being formed by a recess in the edge of the flange; and being of such depth as to hold the outer leg of the channel flush with the edge of the flange.

3. In combination a structural element of channel cross section, a wing flange extending outwardly from the longitudinal edge of one of the legs of said channel element; and a channel member disposed at an angle to said wing flange, said wing flange having a transverse slot therein conforming to the cross section of the channel member to hold the same in said angular position, an end of said slot extending to the edge of the flange and a recess formed in said edge to accommodate the outer leg of the channel member.

4. In combination a structural element of channel cross section, a wing flange extending outwardly from the longitudinal edge of one of the legs of said channel element, and a channel member disposed at an angle to said wing flange, said wing flange having a transverse slot therein conforming to the cross section of the channel member to hold the same in said angular position, said slot being I shaped to fit the channel member when facing in either one of two opposite directions.

5. In combination a structural element of channel cross section, a wing flange extending outwardly from the longitudinal edge of one of the legs of said channel element; and a channel member disposed at an angle to said wing flange; said wing flange having a transverse slot therein conforming to the cross section of the channel member to hold the same in said angular position, the said wing flange being cut away at spaced points of its length to allow the tying of a fastening element around the said channel element thereat.

6. In combination a channel element, a wing flange extending outwardly from the longitudinal edge of each leg of the channel, each wing flange having a transverse slot therein, to accommodate and hold a transverse channel therein on each side of said element in angular relation to said element, each of said slots being I shaped to hold said transverse channels in either one of two opposed positions.

7. In combination a channel element, a wing flange extending outwardly from the longitudinal edge of each leg of the channel, each wing flange having a transverse slot therein, to accommodate and hold a transverse channel therein on each side of said element in angular relation to said element, each of said slots being I shaped to hold said transverse channels in either one of two opposed positions, the said wing flange being cut away at spaced points of its length to allow the tying of a fastening element around the said channel element thereat.

8. In combination a channel element, a wing flange extending outwardly from the longitudinal edge of each leg of the channel, each wing flange having a transverse slot therein, to accommodate and hold a transverse channel therein on each side of said element in angular relation to said element, each of said slots being I shaped to hold said transverse channels in either one of two opposed positions, the outer end of the slot being formed by a recess in the edge of the flange.

9. In metallic studding a plate of U shaped cross section, an outwardly extending longitudinal wing flange on the free edge of each leg of said plate; a transverse slot extending in each wing flange extending from the free edges of the respective wings inwardly, and a member held in each slot at an angle to the plate, said slots conforming to the cross sectional shape of said members.

10. In metallic studding a plate of U shaped cross section, an outwardly extending longitudinal wing flange on the free edge of each leg of said plate; a transverse slot extending in each wing flange extending from the free edges of the respective wings inwardly; and a member held in each slot at an angle to the plate, said slots

conforming to the cross sectional shape of said members, the said slots being adapted to receive and hold the said members in either one of two positions facing in opposite directions.

11. In metallic studding, a plate of U shaped cross section, an outwardly extending longitudinal wing flange on the free edge of each leg of said plate; a transverse slot extending in each wing flange extending from the free edges of the respective wings inwardly, and a member held in each slot at an angle to the plate, said slots conforming to the cross sectional shape of said members, each of the said members being of substantially U shaped cross section.

12. In combination a flanged structural element, and a channel member disposed at an angle to the said element; a flange of said element having a transverse slot therein to conform to the cross section of the channel to hold the said elements in angular relation; and retaining flanges formed on opposed edges of said slot, said retaining flanges being adapted to be bent out of the plane of the flange of the said element to allow the insertion of the channel member into the slot.

13. In combination a structural element having a wing flange extending outwardly from the longitudinal edge of the leg of said element and parallel to the base thereof; an angular structural bar disposed at an angle to said wing flange, said wing flange having a transverse slot therein conforming to the cross section of the angular structural bar to hold the same in said angular position; and a bendable finger formed by the transverse slot in said wing flange to hold said angular structural bar in said slot.

CORNELIUS COLLINS.

104 Nov. 23, 1937. A. H. BLEUEL 2,100,209

STUDDING SHOE

Filed Jan. 20, 1936

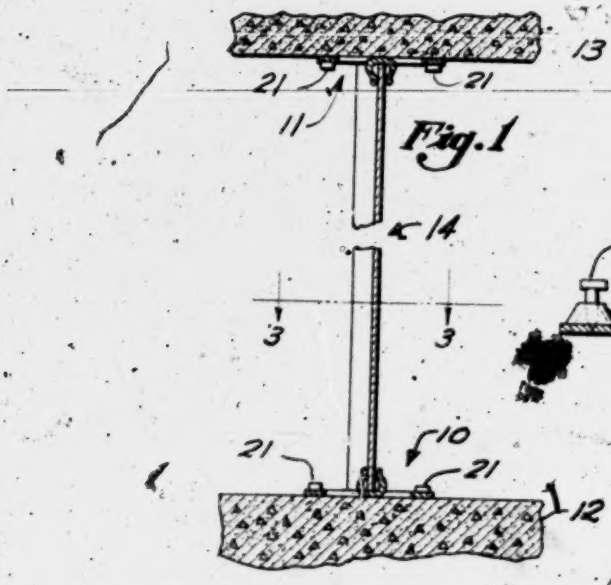

Fig. 1

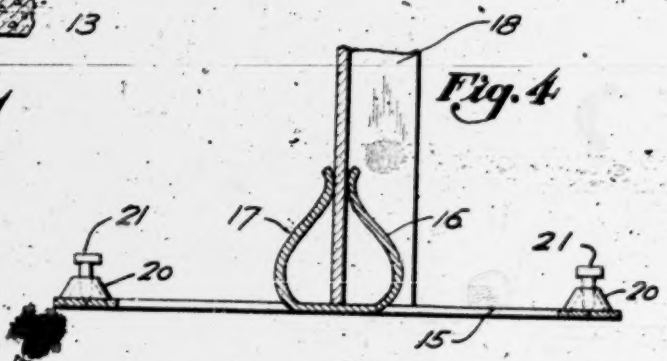

Fig. 4

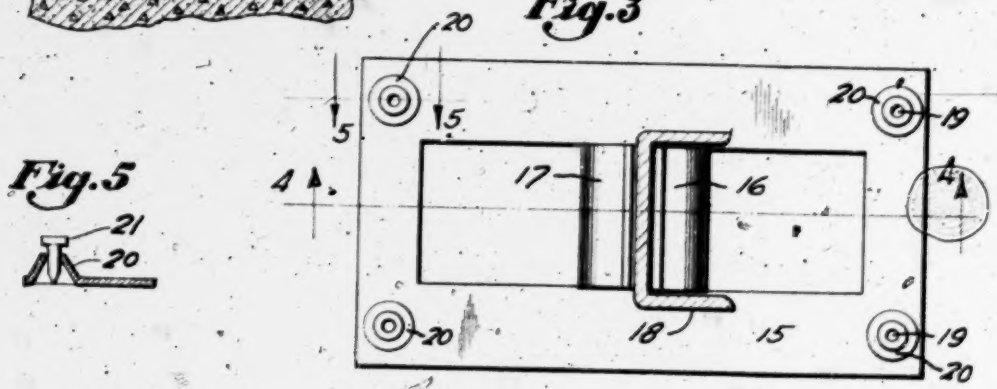

Fig. 3

Fig. 5

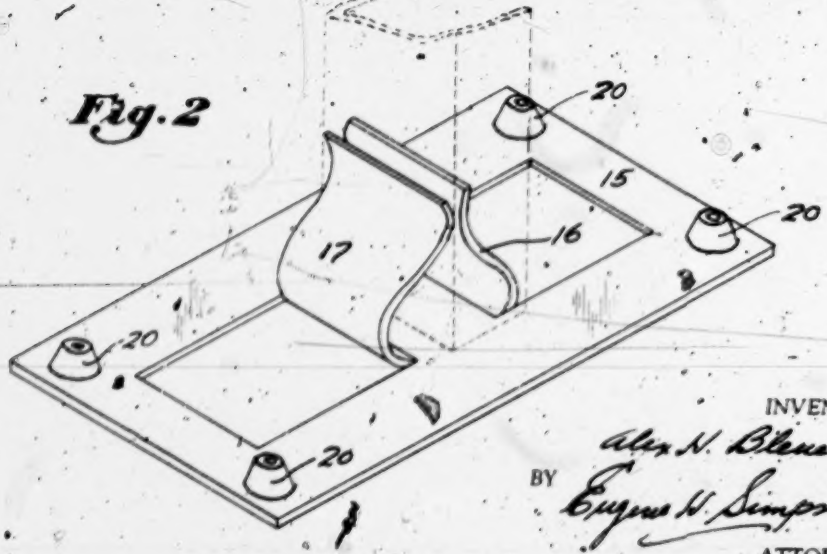

Fig. 2

INVENTOR.
Alex H. Bleuel
BY Eugene N. Simpson
ATTORNEY.

Patented Nov. 23, 1937 2,100,209

UNITED STATES PATENT OFFICE

2,100,209

STUDDING SHOE

Alex H. Bleuel, Wauwatosa, Wis.

Application January 20, 1936, Serial No. 59,845

3 Claims. (Cl. 72—115)

This invention relates to studding shoes, and more particularly to a studding shoe adapted to attach a metal stud directly to a floor.

In using metal studs in the construction of interior partitions in concrete buildings, two general methods have heretofore been employed to fasten the stud to the floor.

The first and most common method has been to drill a hole in the concrete of both the floor and ceiling, and bow the stud into the two holes. Drilling the holes consumes considerable time, and is therefore expensive.

The second method used is to employ a channel iron sleeper which is attached to the concrete floor by expansion bolts, or other suitable means, and attach a similar sleeper to the ceiling, and fasten the studs to the two sleepers either by wiring, or by the use of a studding shoe. This method is also expensive, due to the cost of the sleepers, and hence has not been used generally.

One object of the present invention is to produce a studding shoe that will enable metal studs to be attached directly to the concrete floor and/or ceiling without using intervening sleepers.

Another object is to reduce the cost of constructing interior partitions in concrete buildings.

Further objects are to produce a studding shoe that can be readily and economically manufactured, and which will be simple to use as well as sturdy.

Other objects will be apparent from the following description.

In the drawing:

Fig. 1 is a cross sectional view showing a pair of studding shoes holding a stud in place in a building.

Fig. 2 is an isometric view of the studding shoe, with a portion of a channel stud shown in dotted lines.

Fig. 3 is a plan view of the studding shoe with a channel stud in place, and is a cross section on the line 3—3, of Fig. 1.

Fig. 4 is a cross section on the line 4—4 of Fig. 3, looking in the direction of the arrows.

Fig. 5 is a cross section on the line 5—5 of Fig. 3, showing the conical nail holder.

Referring to the drawing, in which like numerals indicate like parts throughout the several views, two studding shoes 10 and 11 are shown attached to a floor 12 and a ceiling 13 respectively of a concrete building. The shoes support a stud 14 in place between them.

The studding shoes are shown in detail in Figs. 2 to 5 inclusive, and comprise a plate 15 with tongues 16 and 17 punched out and bent up toward each other to form a clamp adapted to engage the opposite sides of the base of a channel or Z-bar stud 18. The tongues 16 and 17 are of sufficient width to engage the sides of the stud 18 and prevent lateral movement of the stud.

The four corners of the plate 15 are punched with holes 19, and the metal surrounding the holes 19 pressed upward to form a frustro-conical projection 20, with the hole 19 on the upper face thereof. The projection 20, and hole 19 form a holding member and guide for concrete nails 21, which are used to secure the shoes 10 and 11 to the concrete.

In use, the stud 14 is cut to length and the shoes 10 and 11 attached to the ends thereof. The concrete nails 21 are inserted in the holes 19 in the projections 20 and held therein by friction. The stud is then put in place between the floor and ceiling, alined in any well known manner, and the nails driven home into the floor and ceiling. The nails are driven flush with the plate 15, flattening the projection 20 against the plate 15, as shown in Fig. 1, to hold the shoe securely in place.

Having thus described the invention, it will be apparent that it is susceptible to various changes and modifications, and it should not, therefore, be limited to the particular form herein shown and described, but only by the scope of the appended claims.

What is claimed as new and desired to secure by Letters Patent is:

1. A studding shoe of the character described comprising, a plate adapted to be fastened directly to a floor, tongues formed on said plate adapted to grip and retain the base of a metal stud, and a frustro-conical projection on said plate having a hole in the outer end thereof adapted to guide and retain a nail while driving into a floor, said projection being adapted to be crushed by the driving of the nail.

2. A studding shoe of the character described comprising, a flat plate adapted to fit flush on a floor surface and be fastened thereto, a pair of resilient tongues formed on said plate and adapted to resiliently retain a metal stud therebetween, and a deformable projection on said plate having means to retain and guide a nail while driving into said floor.

3. A studding shoe of the character described comprising, a flat plate adapted to fit flush on a floor surface and be fastened thereto, a pair of resilient tongues formed on said plate and spaced from each other and adapted to resiliently retain a metal stud therebetween, and a frustro-conical projection on said plate having a hole in the outer end thereof adapted to retain and guide a nail while driving into said floor, said projection being adapted to be crushed by the driving of the nail.

ALEX H. BLEUEL.

[fol. 157] IN DISTRICT COURT OF THE UNITED STATES, SOUTHERN DISTRICT OF NEW YORK

[Title omitted]

STIPULATION AS TO RECORD

It is hereby stipulated and agreed by and between the attorneys for the above-entitled parties that the transcript of record on appeal in the above-entitled cause shall consist of the following:

1. Complaint.
2. Plaintiff's Bill of Particulars.
3. Answer.
4. Notice of Disclaimer.
5. Amendment to Answer.
6. Notice of Motion for Judgment on the Pleadings, etc.
7. Motion for Judgment on the Pleadings.
8. Affidavit in Support of said Motion, including attached excerpts.
9. Affidavit in Opposition to said Motion.
10. Memorandum of Opinion of Judge Knox.
11. Judgment.

[fol. 158] 12. Notice of Appeal.

13. Defendants' Exhibit No. 1, patent in suit, including the Disclaimer attached thereto.
14. Defendants' Exhibit No. 2, prior art patents.
15. This stipulation.

It is further stipulated and agreed, subject to the approval of the Court, that Defendants' Exhibit No. 2, copies of the patents relied upon by the defendants in the moving affidavit of Thomas E. Robertson, need be included in only fifteen (15) copies of the printed record on appeal and three (3) copies of which are to be furnished to counsel for defendants.

Mock & Blum, Attorneys for Plaintiff. Kenyon & Kenyon, Attorneys for Defendants.

Dated: February 25, 1941.

[fol. 159] IN DISTRICT COURT OF THE UNITED STATES, SOUTHERN DISTRICT OF NEW YORK

[Title omitted]

STIPULATION AS TO RECORD

It is hereby stipulated and agreed by and between the attorneys for the respective parties hereto that the foregoing is a true and correct transcript of the proceedings in the District Court in the above entitled action, as agreed on by the parties.

Dated, New York, N. Y., April 23, 1941.

Mock & Blum, Attorneys for Plaintiff. Kenyon & Kenyon, Attorneys for Defendants.

[fol. 160] Clerk's Certificate to foregoing transcript omitted in printing.

[fol. 161] IN UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT, OCTOBER TERM, 1940

No. 335

(Argued June 9, 1941. Decided July 31, 1941)

MILCOR STEEL COMPANY, Appellant,

v.

GEORGE A. FULLER COMPANY, et al., Appellees

Appeal from a judgment of the District Court for the Southern District of New York, dismissing on summary application a complaint for the infringement of claims six and seven of Patent No. 2,105,770, issued January 18, 1938, to Harry Holdsworth.

Before: L. Hand, Chase and Clark, Circuit Judges.

George L. Wilkinson for the appellant.
Malcolm K. Buckley for the appellees.

OPINION

[fol. 162] L. HAND, *C. J.*:

This is an appeal from a summary judgment dismissing the complaint in an action for the infringement of claims six and seven of Patent No. 2,105,770, issued on January 18, 1938, to Harry Holdsworth, and by him assigned to the

plaintiff. The suit was brought on June 22, 1939, and the defendant answered on August 18th. On November 28, 1939, the plaintiff, as assignee of Holdsworth, filed disclaimers as to claims six and seven; and the motion for summary judgment was upon the ground that the disclaimers were invalid and resulted in the abandonment of the claims in suit. So the judge held and the plaintiff appeals. This being a question vital to the action, it was proper to decide it upon an application for summary judgment under Rule 56 (b). Some description of the specifications and claims is needed for its understanding.

The invention is for a metal wall or partition, the body of which is to be of lathing covered with plaster. The lathing is supported by three members: a metal base, a metal top, and metal struts set at intervals and supporting the top. The base is a horizontal "flat metal strapping," running parallel with the floor and nailed to it in places, but, for the greater part of its course running a little above the floor, and folded downwards at intervals to form a series of recesses. The top member consists of an angle iron, one side of which lies close against the ceiling to which it is nailed; the other side is a "vertically depending flange." The struts are metal "channel iron," made up of a central "web" with its two edges bent in the same direction to a right angle; the "web" has a slot at the top capable of receiving the "depending flange" of the top member. That "flange" has a series of staggered openings punched out in the metal which make "projecting burrs." The structure is assembled by inserting the "depending flange" of [fol. 163] the top member into the slot in the "web" of a strut while it is in an oblique position. The end of the strut must be inserted between two opposite "projecting burrs," so that, as it gradually straightens, it touches, or nearly touches, a "burr" at either side, which hold its top in substantially fixed position. As the strut comes to the vertical position, its lower end can also be inserted into one of the recesses of the base. Thus the strut is held in place at either end, and the three members form an open skeleton to which the metal lathing may be wired. The patent issued with seven claims, of which claims six and seven before the disclaimer read as follows:

"6. A wall construction for a room having a floor and a ceiling, said wall construction including a base member and

a ceiling member, said wall construction also including upstanding wall-supports whose height is less than the maximum vertical distance between said base member and said ceiling member, said upstanding wall supports being located between said base member and said ceiling member, said wall supports being vertically movable relative to said base member and to said ceiling member when said wall supports are assembled with said base member and said ceiling member, and means operative to prevent any substantial tilting movement of said wall supports from their predetermined upstanding position.

"7. A wall construction for a room having a floor and a ceiling, said wall construction including a base member and a ceiling member, said wall construction also including upstanding wall-supports whose height is less than the maximum vertical distance between said base member and said ceiling member, said upstanding wall supports being located between said base member and said ceiling member, said [fol. 164] wall supports being vertically movable relative to said base member and to said ceiling member when said wall supports are assembled with said base member and said ceiling member, said base member and said ceiling member being shaped to provide means which are operative to prevent any substantial tilting of said wall supports from their predetermined upstanding position."

It will be observed that there is no difference between these two claims except that the last element of claim six is limited, so that "the means" to prevent tilting appear in claim seven as "said base member and said ceiling member." The disclaimer to claim six disclaimed any scope for the claim except when the ceiling member comprises a "vertical depending perforated flange, one side of which is overlapped by metal lathe;" and the disclaimer to claim seven disclaimed any scope for that claim except when the base member is "composed of a longitudinal strip having recesses to receive the lower ends of the webs of channel wall supports, the flanges of the channel wall supports overlapping the base member adjacent the recesses." The result of the disclaimers was therefore to add to claim six a new element: "the depending perforated flange," and to claim seven also a new element: "the recesses to receive the bottoms of the channel irons." Both these features appeared

in the figures and were adequately described in the specifications.

Its claims are of course the measure of the patent monopoly; the statute requires the patentee "particularly" to "point out and distinctly claim the part * * * which he claims as his invention." § 33, Title 35, U. S. C. All else in his disclosure he abandons to the public; out of all the possible permutations of elements which can be made from the specifications, he reserves for himself only those contained in the claims. Every claim consists of stated elements, and the fewer these are, the more comprehensive it is. [fol. 165] All this is obvious and trite, and it would be needless to repeat it, were it not that courts have often spoken as though among this type of disclaimer there was a class which "add a new element" and are for that reason invalid (apparently because they extend the claim) and a class which do not and therefore are valid. This seems to us demonstrably untrue. Every such disclaimer, i. e. every one which does not surrender the whole claim, must "add a new element" to be a disclaimer at all; it must declare that the claim shall cover no longer a part of those objects which it formerly did cover, and it can do this in no other way than by adding a new element to the claim. There would indeed be no objection to this, if it did no more than contract the claim, for the argument is not valid that the Patent Office did not grant the claim in the form in which it stands after disclaimer. Of course it did not, but it did decide that the patentee might monopolize all that the original claim defined, and in so doing it inevitably decided that he might monopolize all species of that genus; the whole includes the parts.

But if that were the only effect of such a disclaimer, it would never be made for it would then merely surrender part of a valid monopoly, which no patentee would willingly do. The patentee files it because he fears that the claim as it stands may be invalid and hopes in this way to sustain it. This should never have been countenanced, for the original claims in this way become mere traps. The art has the same reason as the patentee for supposing that they are invalid, and it may in fact act in reliance upon that supposition, as it is altogether justified in doing. The disclaimer, if it proves successful, will not only disappoint that reliance for the future, but it will make the art infringe *ab initio* so far as it may have disregarded the claim. If it be

urged that this should be a defence, personal to any particular infringer, which he should be compelled to prove, [fol. 166] we answer that the claim by hypothesis has been withdrawn as invalid or doubtful; the patentee has forfeited it; and that nobody should be held accountable for infringing it. If a new claim is to take its place, the Patent Office should examine how far the art may have acted in reliance upon the invalidity of the old claim, and what excuse the patentee had for claiming so much originally. The new claims are in truth no less than reissued claims. Moreover, like reissues, they should certainly not be retroactive. Patentees do not need such protection. If they succeed in getting a broad claim whose validity they doubt, they should protect themselves by asking for more contracted claims; and if these are denied, good faith requires them to make their contest then and there; or later by reissue, if some subsequent excuse for their original failure really turns up. If they do get narrow claims and the broad ones turn out to be invalid, the public will not have been misled, for the narrow claims will stand as a warning as to which everyone must take his chances.

I must, however, be admitted that before *Altoona Publix Theatres, Inc.* v. *American Tri-Ergon Corp.*, 294 U. S. 477, the law, as settled by the lower courts (ourselves included) was otherwise, although, so far as we have found, the Supreme Court had never before discussed the question and sustained such a disclaimer against the objections we have stated; not even in *Carnegie Steel Co.* v. *Cambria Iron Co.*, 185 U. S. 403, 435, 436, which has been often cited as doing so. But the *Altoona* case cannot by any reasoning be reconciled with the validity of the practice, in spite of certain passages in the opinion on which the plaintiff here relies. The disclaimers added the fly-wheel as a new element; as we have seen, every disclaimer of this type must add a new element, and the court held the claims bad only because the disclaimers did just that. It is true that the Seventh Circuit in *Johnson Laboratories, Inc.* v. *Meissner Mfg. Co.*, 98 Fed. [fol. 167] (2) 937, and the Ninth—by a divided court—in *Payne Furnace & Supply Co.* v. *Williams-Wallace Co.*, 117 Fed. (2) 823, have attempted to make a distinction, but with deference we cannot understand the reasoning. The Sixth Circuit has also twice sustained such disclaimers since the *Altoona* case was decided (*Byrne Mfg. Co.* v. *American Flange Mfg. Co.*, 87 Fed. (2) 783; *Cincinnati Rubber Mfg.*

Co. v. *Stowe-Woodward, Inc.*, 111 Fed. (2) 239) but, strangely enough, it did not mention that decision either time, though we are assured that the defendants urged it in their briefs. Perhaps the Sixth must therefore be added to the other two; but in any event the Supreme Court alone can declare what is the present law on the subject.

Judgment affirmed.

[fol. 168] IN UNITED STATES CIRCUIT COURT OF APPEALS, SECOND CIRCUIT

MILCOR STEEL COMPANY, Plaintiff-Appellant,

v.

GEORGE A. FULLER COMPANY, et al., Defendants-Appellees

JUDGMENT—Filed August 21, 1941

Appeal from the District Court of the United States for the Southern District of New York.

This cause came on to be heard on the transcript of record from the District Court of the United States for the Southern District of New York, and was argued by counsel.

On Consideration Whereof, it is now hereby ordered, adjudged, and decreed that the judgment of said District Court be and it hereby is affirmed with costs.

It is further ordered that a Mandate issue to the said District Court in accordance with this decree.

D. E. Roberts, Clerk.

[fol. 169] [File endorsement omitted.]

[fol. 170] Clerk's Certificate to foregoing transcript omitted in printing.

[fol. 171] SUPREME COURT OF THE UNITED STATES

ORDER ALLOWING CERTIORARI—Filed December 8, 1941

The petition herein for a writ of certiorari to the United States Circuit Court of Appeals for the Second Circuit is granted.

And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.

Endorsed on Cover: File No. 46,048. U. S. Circuit Court of Appeals, Second Circuit. Term No. 720. Milcor Steel Company, Petitioner, vs. George A. Fuller Company, Neff Lathing Company, Inc., and Conver Steel & Wire Company, Inc. Petition for a writ of certiorari and exhibit thereto. Filed October 27, 1941. Term No. 720 O. T. 1941.